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Experimental Manipulation of the Recall of Narrative Material by Five-Year-Olds

The effects of four different conditions under which children of similar age and ability encountered the same narrative material were assessed by comparing the children's recall performances at 30 seconds and one week after the encounters. Results are reported from two studies.¹ In the first study, kindergarten children who enacted a brief story while listening to it recalled significantly more story elements, explicit information, and implicit information than children who merely listened to the story narration. In the second study, effects of two additional conditions were assessed, through comparison with those of the first study. These conditions entailed children who watched a puppet while listening to a narration, and children who covertly rehearsed the story after merely listening to it. Children who enacted the narrative recalled significantly more story elements and explicit information than all other groups. Alternative interpretations and implications are discussed. (Dr. Travis is a member of the Educational Psychology staff and Mr. White is a doctoral student at the Faculty of Education, University of British Columbia.)

Every schoolboy knows that the coding, organization, and recall of information is basic to achievement in virtually all school subjects. Progress in any subject depends upon accurate recall of material, and few of us are unfamiliar with the frustrating experience of having memory fail us when we need it most. Not surprisingly then, teachers have a well-known and enduring interest in developing means to maximize recall and minimize failure to remember.

Recently, research on children's recall has focused on the recall of narrative material. Narrative materials are often presented in sentence or brief story form. Indications are that young children exhibit poor recall of narrative material (Brown, 1975; Paris & Upton, 1976). Poor recall is often attributed to age (Brown, 1975; Flavell, 1971), handicaps of early forms of egocentrism (Brown, 1975; Piaget, 1967), underdeveloped coding systems (Lange & Jackson, 1974; Piaget, 1976), or the absence of learned strategies (Chi, 1976; Flavell, 1970; Paris & Lindauer, 1976).

Attempts to discover means of improving recall performance have produced the following conclusions: first, recall may be increased if children are told to remember rather than merely listen (Yussen, Gagné, Garriulo & Kunen, 1974), or if they are instructed to look for ways that (stimulus) items go together (Rosner, 1971). Second, manipulation or induction of the adoption of strategies (e.g., instructing or requiring children to touch, imagine, or rehearse presented material rather than leaving them to their own devices) produces improved performance (Levin, Lesgold, Shimron & Guttman, 1975; Paris & Upton, 1976; Wilder, 1971). Third, if children are forced to code in specific ways (Trabasso & Riley, 1973) or given a code to work with (Cannizzaro, Cecchini & Musatti, 1975), performance is enhanced (within specified age ranges). The fourth, and last, suggestion is that the methods of presenting material may influence the amount recalled (Bijou, 1976; Brown, 1975; Paris & Lindauer, 1976). The foregoing conclusions, when considered together, suggest the possibility that the method of encoding information from narratives may be a source of the difficulties young children experience in attempts to recall such material (Elkind, 1971; Jablonski, 1974).

While there are several disputes over the nature of children's encoding practices, there is little evidence of controversy over the organizational immaturity and simplicity of young children's conceptual systems and their relatively unsystematic employment of these systems and strategies in coding and organizing abstract information. Accordingly, it may not be unreasonable to assume that these factors are implicated in children's difficulties in recalling verbal-narrative material. This conclusion appears to be congruent with Flavell's (1977) recent assessment of the evidence and its relation to the Genevan's endeavours.

Piaget has explicitly and repeatedly asserted that active engagement with the environment is critical to cognitive development (Flavell, 1963). In addition, Inhelder, Sinclair and Bovet (1974) have suggested that active engagement is implicated in encoding, organizing, and recalling. Following Piaget as well, Bruner (1964) has asserted that enactive representation of information ontologically precedes symbolic representation, where enactive representation is defined as "a mode of representing past events through appropriate motor response" (p. 2). It appears then, that these authors perceive enactive engagement with material as being critical to cognitive development and memory.

One can also take account of studies which have reported performance gains of various kinds, as a consequence of inducing motor activity. Levin, Ghatala, DeRose, Wilder and Norton (1975), for example, reported that motor-induced imagery appeared to constitute a highly effective discrimination learning strategy (with children in the fifth and sixth grades). Moreover, Therrien (1977) has shown how use of play improved recall of story sequence with five-year-olds. Similarly, Rubin and Pollack (1969) taught kindergarten boys to play games with objects as sounds, and in this way increased their auditory perception. Rubin and Pollack (1969) emphasized the effect of visual and visual-motor experience in the five-year-olds' ability to integrate multi-modal inputs. Likewise, Penman, Christopher and Wood (1977) reported that third grade children who learned proper use of capitalization and punctuation in the context of game involving physical body movement, exhibited performance on the criterion measures which was superior to that of the control cohorts who were instructed through presentations while they remained seated. Furthermore, other researchers have generally reported that inducement of active motor movement usually seems to

produce superior performance over other teaching strategies such as those which rely heavily on visual and oral presentation (Levin, McCabe & Bender, 1975; Paris & Lindauer, 1976; Silvern & Yawkey, 1977).

This literature, then, would appear to indicate that performance on memory measures may be improved if children are induced to encode and organize information through their own physical intercourse with the subject matter. In sum, enactive representation, or "a mode of representing . . . events through appropriate motor responses" (Bruner, 1964, p. 2), might be expected to enhance children's performances on memory measures which require retrieval of symbolic representations, since enactive representations seem to entail organization of the information into systems built on action schemes (Bruner, 1964) and young children's symbolic representations seem to be developed from their prior construction of enactive representations. This analysis suggested the following hypothesis: Children who are induced to represent the information of a narrative through their own motor actions will exhibit significantly greater recall of said information than will their cohorts who encounter the same narrative information without being induced to represent the information through motor actions, at 30 seconds and one week after one encounter with the narrative information.

The first of the two studies described below was designed to test the foregoing hypothesis and the second study was carried out to derive theoretical clarification of the results.

Experiment 1

In the first study, kindergarten children were presented a brief story through one or the other of two instructional methods. The instructional methods consisted of an approach where children enacted a brief story with a puppet while listening to the narration (Group I) and a listening only condition where children merely heard the same narration of a story (Group II).

Since actions are the content of enactive representations and enactive representations are thought to form the basis of iconic and symbolic representations (Bruner, 1964), recall of information which is organized through a subject's actions may be enhanced due to such organization. It follows then, that if a five-year-old encountered narrative material and, through enactive experience with it, organized the material through his actions, his recall of that narrative material might be expected to be superior to recall of those who merely listened to a verbal narration of that material. Specifically, it was predicted that children who were presented a brief story and induced to act out that story while listening to it would have higher rate of recall of that story than children who only listened to it.

Method

Subjects. A sample of 35 children ranging in age from 4.75 to 5.83 years were selected from three kindergartens in Vancouver, B.C. Ten children were from a private kindergarten, 16 were from a university area kindergarten, and 9 were from a university operated kindergarten. Three of these children were absent at posttests and were therefore excluded from the sample. Each child was randomly assigned to one of two groups with the restriction that the number of children from each school be approximately equal in each group.

On seven-point scales, teachers rated pupils on ability, performance,

intellectual skills, and overall intelligence. A composite score for each child was formed by combining the four scores for each child. Comparisons between groups with regard to age and ratings revealed no significant differences, [$F(1,30) = .555$, $p = .462$ for age; $F(1,30) = .007$, $p = .931$ for ratings].

Apparatus. Two homemade cotton sock puppets were used, one a rabbit and the other a deer. A two-part painted folding scene of a forest, a farm, and a garden was used as background for the puppets.

A tape-recorded narration of forty seconds' duration was used. The narration was taken from the reading series *Rockets* (Durr, Le Pere & Alsin, 1976, p. 72). Two alternate stories were produced from this source. In the first revised story, the word "perked" was replaced by the word "stood." In the second revision, the words "perked," "rabbit," "hopped," and "hole," were replaced by the words "stood," "deer," "jumped," and "forest."

A cassette tape recorder was used to deliver the narratives and to record the children's recall responses. All children were tested in isolation from their class by a male experimenter.

Procedure. As stated above, all children were randomly assigned to one of two groups. If assigned to Group I (enactive experience), the child was given a training session wherein he was taught to act out a sentence with a puppet. When proficiency was attained in the training session, the child was given the experimental treatment entailing his use of the puppet. This enactive experience condition (Group I) consisted of telling the child to listen very carefully to a short story and make a puppet act out the narration while listening to it. (Appropriate scenery props were used with this group.) If assigned to Group II (listening only experience), the child was told to listen very carefully to a short story. No scenery was used with this group.

When each child was finished listening to the story, there was a 30-second pause to allow for the removal of the puppet and scenery (for Group I) and the changing of tapes in the tape recorder (both groups). The first posttest was then administered. Posttest one (PT-1) consisted of asking the child to tell the story to the experimenter just as the child had heard it. When the child was finished responding (or remained silent for 20 seconds), the experimenter told the child to tell him everything or anything the child remembered about the story. When the child was finished (indicated either by stating he was finished or by failure to respond for 20 seconds), he was told he would have one minute to think about the story. After a 40-second pause, the child was then asked if there was anything he/she would like to add to what was already said. When the child finished responding (indicated by saying so or through a 20-second period of silence), PT-1 was terminated.

One week after each child had heard the narration, he/she was again tested on recall of the story. Each child was first reminded that he/she heard "a story" on the tape recorder and was then asked to tell the story to the experimenter. This second posttest (PT-2) was identical to PT-1 with regard to procedure.

Analysis. The story was categorized into Rumelhart's (Stein & Glenn, 1975) schema for analysis of narrative material. This brief story was broken down into 14 categories. Since either one does or does not recall a given instance of information, the data was treated as nominal data and recall of same was scored as one point while failure to recall was indicated by zero. If a child transposed a category but

gave the general meaning, the category was counted as correct. For example, this was the case when a child said, "He went in a garden" for the statement, "A little brown rabbit (deer) hopped (jumped) into a farmer's garden." Similarly, the substitution of "He looked for some food" for the statement, "It looked all around for something to eat," was accepted. Each child received two scores for this procedure, one at PT-1 and one at PT-2. This comprised the counting for total narrative content of the brief story. Explicit information scores were tallied using a predetermined list of the explicit items in the passage. Implicit information scores were obtained in the same manner as the explicit scores from a list of predetermined implicit items.

Because the hypothesis to be tested was concerned only with results at the end of each posttest, a one-way analysis of variance was used for each measure (categories, explicit information, and implicit information), the posttest measures being the dependent variables and the experimental conditions the independent variables.

Results

The present study was designed to discover whether differences in recall performance would be produced by varying the manner in which children interacted with narrative material. Specifically, the study attempted to test the hypothesis that mean recall performance of children who enacted the narrative (Group I) while listening to it would be superior to mean recall performance of children who merely listened (Group II) to the same narrative. In order to test this hypothesis, two comparisons of three performances were made between two groups. That is, three measures of performances of two groups at 30 seconds and one week after encounters with the material were compared. As previously indicated, between-group comparisons with regard to age and rated ability

TABLE 1
MEANS AND STANDARD DEVIATIONS OF GROUPS I and II ON THE EXPLICIT, IMPLICIT, AND CATEGORY MEASURES AT PT-1 and PT-2

	PT-1		PT-2	
	$\bar{X}$	SD	$\bar{X}$	SD
<u>Explicit Measure</u>				
Group I	9.75*	3.624	6.5*	3.983
Group II	4.875	3.052	2.375	2.63
<u>Implicit Measure</u>				
Group I	1.125*	.957	.563*	.629
Group II	.5	.516	.125	.324
<u>Category Measure</u>				
Group I	5.125*	1.995	3.563*	2.128
Group II	2.75	1.653	1.375	1.455

^a $n = 16$ for each group

* $p < .05$

produced no significant differences. Accordingly, differences between group performances were not attributable to differences in age or rated ability.

The one-way analysis of variance between groups on the three performance measures (narrative content, explicit information, and implicit information), on both posttests, indicated that Group I recalled significantly more narrative material, explicit information, and implicit information than Group II. The means and standard deviations on each measure are summarized in Table 1. Group I had a higher rate of recall on all three measures at PT-1 and PT-2. Analysis of variance indicated this difference to be significant for the explicit information measure [$F(1,30) = 16.938, p = .0003$ at PT-1; $F(1,30) = 11.95, p = .0017$ at PT-2].

The implicit information measure was also significant at both posttests $F(1,30) = 5.282, p = .024$ at PT-1 and at PT-2, $F(1,30) = 5.976, p = .021$.

Furthermore, the category measure (narrative content) also indicated significant performance differences at both posttests [$F(1,30) = 13.437, p = .0009$ at PT-1; $F(1,30) = 11.52, p = .002$ at PT-2].

Discussion

Data from all measures at both posttests indicate that children who enacted a brief story with puppets (Group I) recalled more explicit information, implicit information, and narrative content than did those children who merely listened to it (Group II).

The results of the present study suggest that motoric organization of narrative material enhances recall (of that narrative material). However, one question concerning the results of this study should be discussed. This question concerns the possibility that rehearsal effects may confound the effects of the predictor variable (motor organization) in this study. Since the children of the enactive group (Group I) were necessarily rehearsing the substance of the story as they acted it out, and children in the alternative condition did not have to rehearse the material, one must consider the possibility that performance differences on the posttest measures are attributable to possible advantages gained by the Group I children from rehearsal (Bandura & Jeffery, 1973).

Unfortunately, the design of this study did not enable one to partial out such effect as might be attributable to rehearsal. Therefore, a second was undertaken to partial out such effects.

Experiment 2

In this study, kindergarten children were presented the same brief story as in Experiment 1 through one of two instructional methods. One instructional method (Group III) consisted of an approach where children listened to a brief story, and immediately after hearing it, were told to close their eyes and try to see the story in their mind while remembering or thinking about it. The second instructional method (Group IV) consisted of children watching the experimenter enact the same story with a puppet while the children listened to the narration.

Since the data from Experiment 1 was difficult to interpret with regard to what factors (enactive organization or rehearsal) were implicated in the superior performance of the children in the enactment group (Group I), this study incorporated a condition (Group III) to provide a means of estimating the relative influence of rehearsal and that of enactive organization. Furthermore, since in the

first study there may have been a Hawthorne effect (regarding the use of puppets), Group IV was added to gain an estimate of such an effect.

Groups I and II of the first study were then compared with Groups III and IV of this study to test if varying the manner in which children interacted with narrative material would effect recall performance.

Method

Subjects. A sample of 38 children ranging in age from 4.83 to 6.25 years were selected from two kindergartens in Vancouver, B.C. Seventeen children were from a private preschool kindergarten, and 21 children were from a public kindergarten. A loss of six subjects, due to absence at posttest times, reduced the sample to 32.

Each child was randomly assigned to one of two groups with the restriction that the number of children from each school be approximately equal in each group. As in Experiment 1, teachers rated their students' abilities. These scores were then compared to the groups in the first study. A one-way analysis of variance indicated no age difference between the four groups [$F(3,60) = 1.817, p = .1537$]. Further, the ability ratings for the four groups when analyzed yielded no significant differences [$F(3,60) = 1.565, p = .207$].

Apparatus. The same materials used in the first study were also used in this study.

Procedure. The same procedures as were followed in Experiment 1 were followed except for the changes in the nature of the conditions within which the narratives were encountered (described above).

Analysis. The children's responses were scored and analyzed as in Experiment 1. However, Groups I and II of the first study were analyzed with Groups III and IV of this study since the hypothesis to be tested was concerned with performances of groups from both studies. Therefore, a one-way analysis of variance for each measure (explicit information, implicit information, and narrative content or categories) was used, the posttest measures being the dependent variables and the experimental conditions being the independent variables.

Since the four groups did not differ significantly with regard to age and rated ability, it was assumed that the performance of the four groups at the two posttests could be interpreted with regard to treatment effects.

Results

Like Experiment 1, the second study was designed to discover whether differences in recall performances would be produced by varying the manner in which children interacted with narrative material. A one-way analysis of variance between the four groups on three performance measures (narrative content, explicit information, and implicit information) from both posttests indicated some significant differences. The results are summarized in Table 2.

A one-way analysis of variance on the amount of explicit information recalled at PT-1 indicated significant differences [$F(3,60) = 9.885, p = .0000$]. Similar results were obtained at PT-2 [$F(3,60) = 7.5, p = .0002$]. Tukey's multiple range HSD test (Glass & Stanley, 1970) indicated that Group I performances were significantly superior to those of Groups II, III and IV ($p = .05$) at PT-1 and PT-2.

Analysis of implicit information recalled at PT-1 and PT-2 did not indicate any

TABLE 2
MEANS AND STANDARD DEVIATIONS OF GROUPS I-IV ON ALL MEASURES AT
PT-1 and PT-2

	PT-1		PT-2	
	$\bar{X}$	SD	$\bar{X}$	SD
<u>Explicit Measure</u>				
Group I	9.75*	3.62	6.5*	3.98
Group II	4.87	3.05	2.37	2.63
Group III	3.62	2.36	1.56	1.63
Group IV	5.06	4.34	3.43	3.79
<u>Implicit Measure</u>				
Group I	1.12	.95	.56	.62
Group II	.5	.51	.12	.34
Group III	.68	.87	.56	.96
Group IV	1.12	1.08	.75	1.0
<u>Category Measure</u>				
Group I	5.12*	1.99	3.56*	2.12
Group II	2.75	1.65	1.37	1.45
Group III	1.43	1.2	.75	1.18
Group IV	2.81	2.45	1.5	1.71
<u>Total Score</u>				
Group I	16 *	5.8	10.62*	6.28
Group II	8.12	4.63	3.87	3.94
Group III	5.75	3.87	2.87	3.42
Group IV	9.0	7.46	5.68	6.04

^a $n = 16$ per group

* $p < .05$

significant differences between the groups [$F(3,60) = 2.04$, $p = .1173$ at PT-1; $F(3,60) = 1.84$, $p = .149$ at PT-2].

Analysis of the narrative material (category measure), scored in the same manner as in Experiment 1, indicated significant between-group differences at PT-1 [$F(3,60) = 10.587$, $p = .0000$] and at PT-2, [$F(3,60) = 8.704$, $p = .0001$]. Using Tukey's HSD test, Group I was again found to be significantly outperforming Groups II, III and IV ($p = .05$) at both posttests. Lastly, all three measures were grouped to form a fourth total score. A one-way analysis of variance gave significant between-group differences at PT-1 [$F(3,60) = 9.87$, $p = .0000$] and at PT-2 [$F(3,60) = 7.346$, $p = .003$]. Post-hoc measures again found Group I children to be recalling significantly more than the children in the other groups (at both posttests) as indicated by this analysis of the aggregate data.

Discussion

The present study examined the effects of four types of encounters with narrative material on young children's recall performances. The effects were examined by comparing the amount of free recall at two times after the encounters.

Data from all measures at both posttests indicate that children who enacted a brief story with puppets (Group I) recalled more narrative content and explicit

information than did those children who watched or listened to it (Groups II, III, IV). Furthermore, since analysis of age and rating data indicated that all four groups came from the same age and ability population, the results can be interpreted as indicating that the performance differences can be attributed to differences in experimental treatment. That is, no significant between-group differences were found in teacher ratings of ability or age. Accordingly, the evidence suggests that varying the manner in which children interact with narrative material affects their recall performance of that material and that motoric organization of the narrative information yields significantly higher recall rates.

However, it is suggested that this study be replicated to assess the reliability of these findings, and that another condition, in which children watch and then rehearse the story, be added to the design. The latter would allow for more precise theoretical interpretation of the results since this study suggests a need for further study of young children on covert and overt rehearsal effects. Finally, teachers of children who differ in developmental age may want to know the extent to which there are continuities or discontinuities (and when they occur) with regard to the relative effects these different sorts of encounters with narrative materials have on recall performances.

While a more complete theoretical explanation for the present results will depend upon future research which clarifies the extent to which a rehearsal effect is implicated in recall gains exhibited by children who act out stories, educators may take note that this study has shown that children who do organize information through their actions appear to recall more of such information than do those who watch or merely listen to it. Accordingly, to the extent to which the present results are reliable and where pedagogical techniques require the recall of information, superior recall performances may be expected if the teacher arranges for pupils to enactively organize the narrative material which they are expected to recall.

Note

1. The first study reported herein was described in a thesis submitted by the second author to the Faculty of Graduate Studies at the University of British Columbia in partial fulfillment of the requirement for the M.A. degree. Copies of this paper may be procured by writing to the senior author.

References

- Bandura, A., & Jeffery, R. W. Role of symbolic coding and rehearsal processes in observational learning. *Journal of Personality and Social Psychology*, 1973, 26, 122-130.
- Bijou, S. W. *Child development: The basic stage of early childhood*. New Jersey: Prentice-Hall, 1976.
- Brown, A. L. Recognition, reconstruction, and recall of narrative sequences by preoperational children. *Child Development*, 1975, 46, 156-166.
- Bruner, J. S. The course of cognitive growth. *American Psychologist*, 1964, 19, 1-15.
- Cannizzaro, L., Cecchini, M., & Mussati, T. [Operation and code in the operational development of the child: The operational proportion.] *Archivio de Psicologia Neurologia and Psichiatria*, 1975, 36(3), 271-312. (*Psychological Abstracts*, 1975, 58, No. 9962.)
- Chi, M. T. Short term memory limitations in children: Capacity or processing deficits? *Memory and Cognition*, 1976, 4(5), 559-572.
- Durr, W. K., Le Pere, J. M., & Alsin, M. L. (Eds.), *Rockets*. Boston: Houghton Mifflin, 1976, 72.
- Elkind, D. Early childhood education. A Piagetian perspective. *National Elementary Principal*, 1971, 51(1), 48-55.

- Flavell, J. H. *The developmental psychology of Jean Piaget*. Princeton, N.J.: Van Nostrand, 1963.
- Flavell, J. H. Developmental studies of mediated memory. In H. W. Reese & L. P. Lipsitt (Eds.), *Advances in child development and behavior* (Vol. 5). New York: Academic Press, 1970.
- Flavell, J. H. First discussant's comments: What is memory development the development of? *Human Development*, 1971, 14, 272-278.
- Flavell, J. H. *Cognitive development*. Englewood Cliffs, N.J.: Prentice-Hall Inc., 1977.
- Glass, G. V., & Stanley, J. C. *Statistical methods in education and psychology*. Englewood Cliffs, N.J.: Prentice-Hall Inc., 1970.
- Inhelder, B., Sinclair, H., & Bovet, M. *Learning and the development of cognition*. Cambridge: Harvard University Press, 1974.
- Jablonski, E. M. Free recall in children. *Psychological Bulletin*, 1974, 81(9), 522-539.
- Lange, G., & Jackson, P. Personal organization in children's free recall. *Child Development*, 1974, 45(1), 1060-1067.
- Levin, J. R., Ghatala, E. S., DeRose, T. M., Wilder, L., & Norton, R. W. A further comparison of imagery and vocalization strategies in children's discrimination learning. *Journal of Educational Psychology*, 1975, 67(1), 141-145.
- Levin, J. R., Lesgold, A. M., Shimron, J., & Guttman, J. *Strategies in reading comprehension 4: Pictures and young children's learning from oral prose. Technical report No. 328*. Madison, Wisconsin: University of Wisconsin, 1975. (ERIC Document Reproduction Service No. ED 112 584).
- Levin, J. R., McCabe, A. E., & Bender, B. G. A note on imagery-inducing motor activity in young children. *Child Development*, 1975, 46, 236-266.
- Paris, S. G., & Lindauer, B. K. The role of inference in children's comprehension and memory for sentences. *Cognitive Psychology*, 1976, 8(2), 217-227.
- Paris, S.G., & Upton, L. R. Children's memory for inferential relationships in prose. *Child Development*, 1976, 47(3), 660-668.
- Penman, K. A., Christopher, J. P., & Wood, G. S. Using gross motor activity to improve language arts concepts by third grade students. *Research Quarterly*, 1977, 48(1), 134-137.
- Piaget, J. *Six psychological studies*. New York: Random House, 1967.
- Piaget, J. *The grasp of consciousness*. Cambridge: Harvard University Press, 1976.
- Rosner, S. R. The effects of rehearsal and chunking instructions on children's multitrial free recall. *Journal of Experimental Child Psychology*, 1971, 11, 93-105.
- Rubin, L., & Pollack, C. Auditory perception in kindergarten children. *Journal of Special Education*, 1969, 3(2), 155-161.
- Silvern, S. B., & Yawkey, T. D. Young children's encoding of images based on motor and verbal modes of mediation. *Psychology in the Schools*, 1977, 14(1), 112-115.
- Stein, N., & Glenn, C. A developmental study of children's recall of story material. Paper presented at the Society for Research in Child Development, Denver, Colorado. St. Louis, Missouri: Washington University, 1975.
- Therrien, S. Children's play: Translating research into practice. *Early Childhood Education*, 1977, 10(2), 10-19.
- Trabasso, T., & Riley, C. A. *An information processing analysis of transitive inferences*. Princeton, N.J.: Princeton University, 1973. (ERIC Document Reproduction Service No. ED 091 043.)
- Wilder, L. Spoken rehearsal and verbal discrimination learning. *Speech Monograph*, 1971, 38, 113-120.
- Yussen, S. R., Gagné, E., Garriuolo, R., & Kunen, S. *The distinction between perceiving and memorizing in elementary school children*. Madison, Wisconsin: University of Wisconsin, 1974. (ERIC Document Reproduction Service No. ED 098 538.)

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Perception of the Administrative Role of the Principal as a Factor in Student Conflict in Nigeria

The wave of student unrest in Nigerian secondary schools has been increasingly blamed on the administration of the schools. To examine the connection between school administration and student crisis, an investigation was carried out into the extent to which the degree of congruence in the principal-student perception of the administrative role of the principal was related to the level of student conflict behaviour. Results showed that the two variables had a high negative relationship. In schools where there appeared to be a low degree of congruence, a high level of student conflict was evident, and vice versa. (Dr. Nwankwo is a lecturer at the University of Ibadan, Nigeria, and Dr. Ohikhena is Head of the Department of Educational Management, University of Ibadan.)

The phenomenon of student conflict behaviour is as old as schooling. But the recent wave of student unrest in Nigeria appeared challenging to both school administrators and the government, and constituted a threat to the objectives of the education enterprise. Equally disturbing was the fact that some of the conventional explanations for such student group protests appeared inadequate in the light of the frequency and magnitude of recent student crises. Furthermore, conflict models such as the problem of generational gap (Green, 1952), adolescent "storm and stress" (Coleman, 1961; Davis, 1944; Elkin & Westley, 1955; Williams, 1952), the bimodal age, sex, or class distribution within the school population (Chesler & Franklin, 1968; Waller, 1965), low socioeconomic status or poor home background (Hollingshead, 1949; Oloruntinmehin, 1974), or parental insecurity (Frankenstein, 1970) could not sufficiently explain the nature or occurrence of the conflict phenomenon in the schools. In most of the conflict demonstrations, the student protesters directed their aggression toward the school administrator or some vital school property (*Daily Times*, February 5, 1975; April 16, 1975, October 22, 1975; *Daily Star*, March, 1976). Also, the parents, the mass media, and the public tended to blame recent student crises on the schools themselves (*Nigerian Chronicle*, July 5, 1974; *Daily Times*, February 10, 1975, March 25, 1976).

Problem

The purpose of the study was to investigate to what extent student conflict behaviour is related to the perception of the role of the school administrator. The strong relationship between perception and behaviour has been stressed by social psychologists and behaviour scientists (Hargreaves, 1975, p. 33; Heider, 1958, p. 31; Rogers, 1969, p. 200).

Some recent studies on student protests had pointed to the centrality of the student perception of some unfavourable social or institutional issues in the student protest motives (Blackstone, Gales, Hardley, & Lewis, 1967, p. 241; Linowitz and others, 1970, p. 17). Also the importance of some degree of agreement (congruence) in role perception for the functioning of social organizations has been indicated in some recent reports on organizational behaviour (Hargreaves, 1975; Miklos, 1963; Zalkind & Costello, 1962).

Specifically, the problem was to find out:

1. whether the principal and the student perception of the administrative role of the principal were congruent and to what degree;
2. whether the degree of congruence in the principal-student perception of the principal's administrative role was related to the level of student conflict behaviour in secondary schools in the Imo State of Nigeria.

Theoretical Framework

Generally, in a social organization, conflict may indicate the existence of incompatible activities in relation to information, beliefs, interests, or desires (Deutsch, 1969). One of the questions that motivated this study was the endemic occurrence of student conflict in Nigeria. It was observed that even among schools with students of comparable ages, sex, grades, background, or staff of identical composition and strength and comparable facilities or utilities, some experienced more student conflict and disruption than others. Were the schools with more frequent student conflict, then, experiencing greater differences in the members' beliefs, perceptions, expectations, interests, and desires than the less disrupted schools? To this end, we hypothesized that student conflict behaviour in schools might turn out to be students' reaction to their right or wrong perception of some differences between their perception or expectation of the school administration and what the school administrator (the principal) perceived himself or his office to be doing. If such a discrepancy was perceived, the students in such schools might see the school as inimical and frustrating. Students would tend to use the instrument of redress which was safest and most readily available to them — mob action or group protest — to demonstrate their dissatisfaction and to effect a change. The degree of perceptual congruence in the way the principal and the students saw the school administration was the major independent variable of this investigation. Pepitone (1970) had suggested some implications which this investigation would have by stating:

If such a close relation exists between perception and action, inappropriate or maladaptive social behaviour could be supposed to depend upon incorrect or distorted perceptions of the social situations. From this point of view many problems of interpersonal relations may turn out to be in some measure the consequences of perceptual distortion. (p. 71)

Another theoretical problem hinges on the nature of the principal-student relationship. The relationship between the principal and the students was

conceived as approximating what Jones and Thibaut (1958) referred to as “asymmetrically contingent interaction” (p. 156). The behaviour of students is mostly contingent on the principal’s behaviour and the behaviour of the principal is (as most principals see it) partially contingent on student behaviour, but generally independently determined. Therefore, the degree of mutuality between the principal and the students in their awareness of the apparent asymmetry in their interaction would influence their perception of the principal’s role. Incompatible perceptions of roles may lead to severe strains in social organizations because while one actor may perceive the relationship as fully contingent, the other(s) may perceive it as noncontingent (Hargreaves, 1975). It was also hypothesized that, in the extent to which the principal and the students agree on their perceptions of the administrative role of the principal, to that extent would there be harmony and lower level of student conflict in the school. These hypotheses are diagrammatically shown on the theoretical model given in Figure 1.

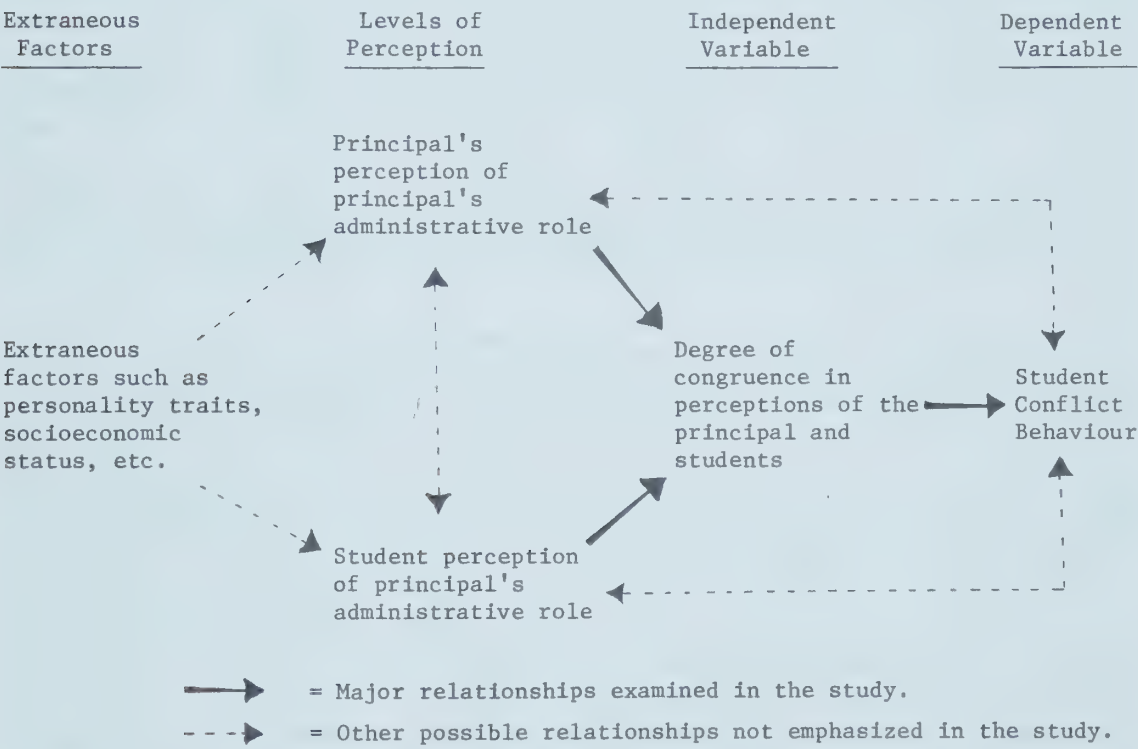


Figure 1. A hypothetical model of the relationship between congruence in principal-student perception of the principal’s administrative role and the level of student conflict.

The Principal’s Administrative Role. Generally, the term administrative role would imply the set of norms and expectations applied to incumbents of administrative positions. But when it comes to operationalizing the concept of administrative role for the purpose of measuring it in public and “domesticated” organizations like the school system (Carlson, 1965, p. 3), there arises the problem of which behaviour is purely administrative and not something else. The problem that has plagued the definition of administrative role may be attributable to its historical development. The term administration has been variously and often contradictorily used by various camps (business, commerce, politics, law, and now, education). Secondly, the development of educational administration in Nigeria

under separate controls by different agencies such as religious organizations, the colonial government, and some enterprising local individuals, made it difficult for a clear and precise definition of the principal's administrative role in the school system. The principal's administrative role in Nigeria, therefore, tended to depend on what the principal found himself doing to get the school going or otherwise what the school board for a district had instructed the principals to do. To solve the problem of defining principalship role, the principals were asked to define what they did as school administrators. The Principal Role Perception Questionnaire (PRPQ) Forms I and II were administered to them (Nwankwo, 1977, pp. 289-294). Gross, Mason, and McEachem (1966) had advised that "in studying a particular role, an investigator would presumably try to elicit from the members of a specified population the expectations which they hold for the incumbents of a specified position" (p. 60). From the responses of the principals to the PRPQ Form I instrument, the following administrative role dimensions appeared to be commonly identified by most school principals: (a) planning and policy making; (b) executive action, and (c) control. The principals were also involved in determining the twenty-four items that encompass the above dimensions (PRPQ, Form II), and which comprise the final instrument (PRPQ Form III). Therefore, the definition of the administrative role of the principal in this study is in relation to the principals' behaviours related to planning and policy making, executive action, and control, as these apply to the secondary schools. This definition appeared to agree with Niles' (1941) definition, and Stephen Knezevich First Order Abstractions in the Dual Classification of Terms Describing the Administrative Process (Knezevich, 1975, p. 33).

Student Conflict. Although our theoretical model appeared to approximate student conflict behaviour with some measures of "indiscipline", it did not intend to equate the two concepts. Indiscipline tends to connote deviance, delinquency, or other aberrant individual behaviours which cannot adequately reflect the group behavioural contingencies envisaged by the design of this study. Rather, the term "student conflict" is employed because it is apparently a less loaded and empirically more determinable concept than indiscipline. Student conflict refers to actions by groups of students which indicate the existence of incompatible activities, motives, and perceptions. These actions would include activities that obstruct, interfere with, disrupt, or hamper other normal activities in the school. Such conflict behaviours might be indicated by the closure of the school, expulsion, restriction or mass punishment of groups of students, or boycott of school activities. The emphasis in our definition of student conflict was on what Cattell (1948) calls "group syntality", that is, action judged from the point of view of the corporate or consensual behaviour of students as groups rather than in terms of the sum of individual students' misconduct which could be the results of certain physiological, social, economic, or political factors outside the scope of the investigation.

Design of the Study

Sample

The study sample comprised 50 schools, 50 principals, and 1,000 students. From the Imo State Schools Management Board (SSMB) a list was obtained of 16 secondary schools that had experienced student crises, riots, or violent demonstrations during the period covered by the study (April, 1975 to June, 1976).

Since these schools had the conflict element that was crucial to the study, they were deliberately included in the sample. The remaining 34 schools were selected by "cluster" method, making sure that at least two schools were randomly selected from the list of full secondary schools (up to Class V) in each of the 16 Local Government Areas (1975). For a school to be included in the sample, it was required that its principal have been in the school throughout the period covered by the study. All the schools were tested on the School Conflict Test (see Instruments); twenty schools (including the 16 schools listed in the SSMB Reports for school crises) scored high on the level of student conflict. These twenty schools were categorized as "A" schools, that is, schools with high level of student conflict. The other 30 schools were categorized as "B", that is, schools with low level of student conflict.

The selection of the principal sample was automatic with the selection of his school. For the student sample, 20 students were randomly selected (10 students from each of Forms IV and V). Eventually the ratio of the sample to population was 39 percent for the schools and principals, and 30 percent for the students (that is, students in Forms IV and V in the State under study). These ratios were considered representative for a survey of this nature.

Study Instruments

Two main questionnaire instruments were used: The Principal Role Perception Questionnaire (PRPQ, Forms I, II, and III) and the Student Conflict Test (SCT).¹

Principal Role Perception Questionnaire

(a) PRPQ Form I was the scale by which principals rated, among enumerated administrative role dimensions, the role dimensions related to their daily duties in the schools.

(b) PRPQ Form II was a check list by which principals checked from a list of administrative duties related to identified dimensions of planning and policy-making, executive action, and control, those duties that characterized their daily behaviours in their schools.

(c) PRPQ Form III was the main questionnaire-type instrument developed from Forms I and II. This instrument was used to test the perceptions of the principals and the students on a five-point, equal appearing, Likert-type scale on 24 items. The PRPQ Form III had a reliability of .881.

Student Conflict Test. This test was developed during a pilot study and was used to weight the level of student conflict in each school. For the test, the principals, teachers, and selected students in the two uppermost grades of the schools were asked to indicate how often the following conflict indicators had occurred in their schools: the school was closed down as a result of student crises; some groups of students were punished, suspended, expelled, etc., as a result of serious misconduct; or the students boycotted classes, meals, or other school activities in protest against the school or the school authorities.

All the instruments were administered in person, ensuring a 100 percent return and offering the investigators the opportunity to observe some schools at work and to interview some principals and/or students.

Data Analysis

The scores on the PRPQ Form III test for each school were summed up across the 24 items. The means were converted into standardized scores using arbitrary mean 50 and standard deviation 10. All schools scoring 50 and above were regarded as category “A” or “High Level of Student Conflict Schools” while those schools scoring below 50 were regarded as category “B” or “Low Level of Student Conflict Schools.” For the data on the PRPQ (Form III) the Gross et al. (1966, p. 167) method of role consensus analysis was tried and found to give extreme correlations; also some researchers had criticized the Gross method of overall between-position consensus as tending to give spurious correlations (Cronbach & Furby, 1970; Manning and Dubois, 1962). Therefore the Hammer and Dachler (1975, p. 65) formula was used in this study to derive the index of congruence in the perception of the leader as an individual and his subordinates as a group. Using this method: (a) the mean of the student ratings of their perception of the principal’s administrative role for each of the 24 items was obtained for all 20 students for each principal; (b) the principal’s ratings of his perception for each item were correlated with the mean ratings for his students, using the Pearson Product Moment Correlation; and (c) the indices of correlation of congruence were converted to standardized scores (to agree with the standardized scores on the Student Conflict Test scores) using an arbitrary mean 50, and standard deviation 10.

Findings

Degree of Congruence in the Principal-Student Perception of the Principal’s Administrative Role

Table 1 shows the degree of congruence in the principal-student perception of the principal’s role according to individual schools. From this table it appears that 64 percent (32 out of 50) of the sample schools had high degree of congruence on the perception of the principal’s administrative role. But when considered according to school category, few (25%) in category “A” (high level of conflict) had a high degree of congruence in the perception of the principal’s role. Table 2 shows the relative percentage congruence of the sample school categories. Most schools (90%) in category “B” (low level of conflict) appeared to indicate a high degree congruence. The test of significance of the differences according to school category and based on the total sample is shown in Table 3. According to the table, category “A” schools indicated significant differences in the test of the principal-student between-and within-group perception of the principal’s role ($t = 2.543$; $F = 6.468$, $p < .05$), whereas no significant differences were reported in category “B” school ($t = 1.411$; $F = 2.016$, $p < .05$). On the total sample basis, there were no significant differences in the group means ($t = 1.702$; $p < .05$), whereas significant differences were found in the within-group variances ($F = 2.890$; $p < .05$).

The Relationship between the Degree of Congruence in the Principal-Student Perception of the Principal’s Administrative Role and the Level of Student Conflict Behaviour

The individual school scores on both the degree of congruence in the principal-student perception of the principal’s administrative role and the scores on the level of student conflict are given in Table 4. A cross-break table analyzing the scores on the relationship between congruence in perception and the level of

TABLE 1
DEGREE OF CONGRUENCE IN THE PRINCIPAL-STUDENT PERCEPTION
OF THE PRINCIPAL'S ADMINISTRATIVE ROLE

School Number and Category	Congruency Correlation Coefficients r*	Standard (z) Scores**	Significance of Scores	School Number and Category	Congruency Correlation Coefficients r*	Standard (z) Scores**	Significance of Scores
01 (A)	.201	33	N.S.	26 (B)	.480	50	Sig.
02 (A)	.220	35	N.S.	27 (B)	.480	50	Sig.
03 (A)	.261	37	N.S.	28 (B)	.512	52	Sig.
04 (A)	.243	42	N.S.	29 (B)	.501	51	Sig.
05 (A)	.250	36	N.S.	30 (B)	.541	54	Sig.
06 (A)	.302	39	N.S.	31 (B)	.560	55	Sig.
07 (A)	.242	36	N.S.	32 (B)	.583	56	Sig.
08 (A)	.311	40	N.S.	33 (B)	.591	57	Sig.
09 (A)	.272	38	N.S.	34 (B)	.582	56	Sig.
10 (A)	.340	42	N.S.	35 (B)	.602	57	Sig.
11 (A)	.366	43	N.S.	36 (B)	.601	57	Sig.
12 (A)	.301	39	N.S.	37 (B)	.611	58	Sig.
13 (A)	.391	45	N.S.	38 (B)	.602	57	Sig.
14 (A)	.280	38	N.S.	39 (B)	.632	59	Sig.
15 (A)	.351	42	N.S.	40 (B)	.651	60	Sig.
16 (A)	.491	50	N.S.	41 (B)	.652	60	Sig.
17 (A)	.503	51	Sig.	42 (B)	.650	59	Sig.
18 (A)	.491	50	Sig.	43 (B)	.701	63	Sig.
19 (A)	.531	53	Sig.	44 (B)	.620	68	Sig.
20 (A)	.503	51	Sig.	45 (B)	.683	62	Sig.
21 (B)	.222	35	N.S.	46 (B)	.663	61	Sig.
22 (B)	.241	36	N.S.	47 (B)	.724	64	Sig.
23 (B)	.261	37	N.S.	48 (B)	.763	66	Sig.
24 (B)	.480	50	Sig.	49 (B)	.802	69	Sig.
25 (B)	.491	51	Sig.	50 (B)	.743	65	Sig.

* N = 24, d.f. = 22; r < .404, p < .05 = N.S.; r > .404, p < .05, r = Sig.

** Standard scores based on arbitrary $\bar{x}$ 50, SD, 10; z < 50 = Low = NS;
z > 50 = High = sig. (Ref., Garrett, H. E., *Statistics in Education and Psychology*, 6th Ed., London, 1970, pp. 312-314.)

Total Sample Result: High degree of congruence schools (r > .404; z $\geq$ 50) = 32 or 64%.
Low degree of congruence schools (r < .404; z < 50) = 18 or 36%.

TABLE 2
DEGREE OF CONGRUENCE IN THE PRINCIPAL-STUDENT PERCEPTION
OF THE PRINCIPAL'S ADMINISTRATIVE ROLE
ACCORDING TO SCHOOL CATEGORY

Degree of Congruence in Principal-Student Perception of Principal's Role			
Low		High	
(r < .404; z score < 50)		(r > .404; z score > 50)	
<u>School Category A (N = 20)</u> (High Level of Conflict)			
Number	15	5	
% Congruence	75%	25%	
<u>School Category B (N = 30)</u> (Low Level of Conflict)			
Number	3	27	
% Congruence	10%	90%	

For r: N = 24, d.f. = 22, p < .05
For standard score: N = 50

TABLE 3
TESTS OF SIGNIFICANCE OF DIFFERENCES IN THE PRINCIPAL-STUDENT
PERCEPTION OF THE PRINCIPAL'S ADMINISTRATIVE ROLE
WITH RESPECT TO SCHOOL CATEGORY

Sample School Category	MEANS <i>t</i> -test ^a	VARIANCES <i>F</i> -ratio ^b
Category A (<i>N</i> = 20) (High Level of Student Conflict)	2.543*	6.468*
Category B (<i>N</i> = 30) (Low Level of Student Conflict)	1.411	2.016
ALL SAMPLE (<i>N</i> = 50)	1.702	2.890*

^a d.f.: Category A = 38; Category B = 58; Category A and B = 96.
^b d.f.: Category A = 1, 38; Category B = 1, 58; Category A, B = 3, 96.
* Significant differences, *p* < .05

TABLE 4
INDIVIDUAL SCHOOL RESULTS ON THE DEGREE OF CONGRUENCE ON
PRINCIPAL ROLE PERCEPTION AND LEVEL OF STUDENT CONFLICT

School Number	Congruency Coefficient <i>r</i> *	Standard Scores on Perception** (<i>z</i>)	Standard Scores on Level of Conflict** (<i>z</i>)	School Number	Congruency Coefficient <i>r</i> *	Standard Scores on Perception** (<i>z</i>)	Standard Scores on Level of Conflict** (<i>z</i>)
<u>School Category A</u>				<u>School Category B</u>			
01	.201	33	70	21	.222	35	50
02	.220	35	67	22	.241	36	50
03	.261	37	67	23	.261	37	47
04	.243	42	64	24	.480	50	47
05	.250	36	64	25	.491	51	47
06	.302	39	64	26	.480	50	47
07	.242	36	64	27	.480	50	45
08	.311	40	65	28	.512	52	45
09	.272	38	61	29	.501	51	45
10	.340	42	61	30	.541	54	45
11	.366	43	61	31	.560	55	45
12	.301	39	61	32	.583	56	42
13	.391	45	61	33	.591	57	42
14	.280	38	61	34	.582	56	42
15	.351	42	59	35	.602	57	42
16	.491	50	59	36	.601	57	42
17	.503	51	59	37	.611	58	42
18	.491	50	96	38	.602	57	42
19	.531	53	56	39	.632	59	39
20	.503	51	56	40	.651	60	39
				41	.652	60	39
				42	.650	59	39
				43	.701	63	39
				44	.620	68	39
				45	.683	62	39
				46	.663	61	38
				47	.723	64	38
				48	.763	66	38
				49	.802	69	36
				50	.743	65	38

* All *r*'s are on the Product Moment Formula.
** Standard (*z*) Scores are on arbitrary $\bar{x}$, 50, SD. 10. All scores above 50 are significant.

TABLE 5
CROSS-BREAK TABLE OF THE RELATION BETWEEN CONGRUENCE IN THE
PRINCIPAL-STUDENT PERCEPTION OF THE PRINCIPAL'S ADMINISTRATIVE
ROLE AND THE LEVEL OF STUDENT CONFLICT

Level of Student Conflict	Degree of Congruence in Role Perception		All
	Low (z score < 50)	High (z score > 50)	
Low (School Category "B") (standardized score < 50)	3 A	27 B	30 A+B
High (School Category "A") (standardized score > 50)	15 C	5 D	20 C+D
All Sample Schools ("A", "B")	18 A+C	32 B+D	50 A+B+C+D

$\chi^2 = 20.00$; d.f. = 1; $p < .05$ (See Note 2)
 $r_t = -.871$, BC < AD, (r_t is negative) (See Note 2).

student conflict is shown in Table 5. The results show that there was a strong relationship between the principal-student perception of the principal's administrative role and the level of student conflict in the schools ($\chi^2 = 20.00$, d.f. = 1, $p < .05$). Table 5 also indicates that the relationship between the two variables, perceptual congruence and level of conflict, was negative ($r_t = -.871$; $p < .05$), implying that the lower the degree of congruence in the principal-student perception of the principal's role, the higher the level of student conflict behaviour in the schools and vice versa.

Discussion

Although this study showed interesting results on the degree of perceptual congruence and on the relationship between the perception of the principal's administrative role and the level of student conflict, conclusions were drawn with caution because inferences on organizational behaviour or group social interaction based on perception may be fraught with risks. For group perception of persons or events to be reliable, it has to provide for other dyadic characteristics such as "mutuality" and accuracy. However, by analyzing the scores on the PRPQ Form III Instrument, we got some measures of the degree of congruence in the principal-student perception of the principal's role, and since there were no strong grounds to contest what or how they perceived, we assumed "mutuality" and congruence in their perception. In addition, if mutuality and congruence in perception are assumed, the third characteristic, "accuracy," is necessarily present (Taguiri, 1958, p. 325). The finding in this study of an appreciable degree of congruence in the perceptions of some of the principals and their students appears interesting because most earlier studies had suggested that consensus in perception among groups (even between reference groups) might be difficult to achieve (Gross

et al., 1966, p. 74; Halpin & Winer, 1957; Horowitz, Anderson & Richardson, 1969; Osibov, 1961). The findings of this study may be a consequence of concentration on group perception of stimulus events such as the day-to-day events in the school, rather than on indirect “episodic” or “dispositional” judgements which could be affected by individual personality and social or other extraneous factors outside a rigidly defined school setting.

On the relationship between congruence in the perception of the principal’s administrative role and the level of student conflict behaviour (the main interest of the study), findings showed that most of the schools (75%) indicating a high level of student conflict also tended to have a low degree of congruence in the perceptions of the principal’s role, while a majority of the schools (90%) that indicated a low level of student conflict had a high degree of perceptual congruence on the administrative role of the principal. Several studies in social psychology, sociology, and organizational behaviour have tended to stress the importance of perception in social action. The present study tended to extend that hypothesis to group action by asserting that the nature of group action may also depend on the degree of perceptual congruence on a focal person, event, or situation. People will behave according to their perception of a situation, and apparently, the more consensual the perceptions of people in a social situation, the more functional and harmonious their behaviours tend to be. Our investigation has supported this hypothesis by demonstrating that where there is a high degree of agreement in the way the principal and the students perceive the school administration, there tends to be less student conflict behaviour.

The question may arise as to which of the variables — degree of congruence in the perception of the administration or level of student conflict — causes the other. While it would be necessary to consider the issue of causal relationship between the two variables, this investigation was simply a correlational one and the findings imply that the two variables would tend to be found in association in secondary schools in Nigeria. This assumption presupposes that it could be possible to understand, predict, or control any of the two variables to a reasonable degree by understanding, predicting, or controlling the other. However, it might be easier administratively to understand or manipulate issues related to perception of the school administration in order to influence student behaviour than it would be the other way around.

Another question pertinent to our findings is whether a high degree of congruence in the principal-student perception of the principal’s administrative role comes as an organizational accident or whether it is achieved by administrative design. The answer to this question would draw from our principle of asymmetrical relationship highlighted in the theoretical framework earlier for the study shown earlier. The argument is that student behaviour is directly influenced by the principal’s role, but that the principal’s role (often defined by the School Board) is only partially determined by student behaviour. Logically, therefore, the principal can deliberately influence student behaviour by a carefully programmed design of administration. In other words, the principal has the chance of achieving a high degree of perceptual congruence between himself and his students (and even teachers) by employing appropriate administrative mechanism to help them to perceive his administration as he does. The principal may also achieve a high degree of perceptual congruence through appropriate communication, encouraging student involvement in the school life (House & Miller, 1973, p. 31) and

participation in decision-making. If the members of the school are informed and there is an opportunity to arrive at a measure of consensus on major administrative and other issues affecting the activities and performance of all members, then congruence in perception will tend to be greatly enhanced.

The following characteristics tended to be present in the sample schools where there was a high degree of congruence in the principal-student perception of the principal's administrative role: (a) the staff and students were kept informed of the day-to-day issues, problems, and developments in the school; (b) the principal or his deputy was readily accessible to students much of the time for consultation about their personal problems; (c) the principal occasionally visited students at work and sometimes participated in classroom teaching; (d) there was opportunity for staff and students to participate in decisions related to the day-to-day running of the school; (e) the principal and the teachers showed signs of friendliness, understanding, regard, and confidence; (f) the principal encouraged leadership and innovativeness in both students and teachers; and (g) qualities of leadership, punctuality, and hard work were infused in the school, not by coercion but by the exemplary behaviour of the principal.

In those schools where the principal-student perception of the principal's role was characterized by a low degree of congruence, there were signs of the principal's hoarding information, avoiding group meetings on school matters, being skeptical about delegating authority to staff or students, and tending to overload their office and administrative channels. The result was often a break in communication between the principal's perception of his role and the students' perception of the principal's role, resulting in low perceptual congruence. This situation of communication breakdown between the principal and the students (Erikson, 1966), created room for speculations, rumours, and suspicions, thus setting the stage for school-induced frustration and, finally, student conflict.

Conclusion

Our study suggests that a major determinant of student conflict behaviour in Nigerian secondary schools may be the perception of the school administration. The findings suggest that student conflict behaviour is not necessarily an imperative school phenomenon, but rather a situational consequence of the degree of perceptual congruence in the school. We also suggest that student conflict may be reduced through appropriate administrative mechanisms that enhance perceptual congruence or consensus in expectations, such as improving communication between the students and the school administration.

Notes

1. These instruments were developed during the pilot study on the development of instruments for a Ph.D. research. For the development and sample of these instruments, see Nwankwo (1977), pp. 147-164, and Appendix B₁, B₂, and B₃.
2. χ^2 (Chi-square) may be obtained from the solution of the 2×2 contingency table, and using a table of Chi-square to test the significance: d.f. = 1, $p < .05$. The tetrachoric correlation coefficient, r_t , is more easily derived from the 2×2 (or AD/BC) contingency table. This was considered necessary in order to determine both the degree and the direction of the relationship between variables (see Garrett, 1970, pp. 384-388).

References

- Blackstone, T., Gales, K., Hardley, R., & Lewis, W. *Students in conflict: L.S.E. 1967*. (L.S.E. Research Monographs 5). London: Weidenfeld and Nicolson, 1967.
- Carlson, R. O. Barriers to change in public schools. In R. O. Carlson et al., *Change process in*

- public schools. Eugene, Oregon: Centre for Advanced Study of Educational Administration, 1965.
- Cattell, R. B. Concepts and methods of measurement of group syntality. *Psychological Review*, 1948, 55, 48-63.
- Chesler, M., & Franklin, J. Interracial and interorganizational conflict in secondary schools. Paper presented at the Annual Meeting of American Sociological Association, Boston, Mass., August, 1968.
- Coleman, J. S. *The adolescent society*. New York: Free Press, 1961.
- Cronbach, L. J., & Furby, L. L. How should we measure "change" — Or should we? *Psychological Bulletin*, 1970, 74, 68-80.
- Daily Star*. Enugu, Nigeria.
- Daily Times*. Lagos, Nigeria.
- Davis, K. Adolescence and social structure. *The Annals of the American Academy of Social and Political Sciences*, November, 1944.
- Deutsch, M. Conflicts: Productive and destructive. *Journal of Social Issues*, 1969, 25, 7-43.
- Elkin, F., & Westley, W. A. The myth of adolescent culture. *American Sociological Review*, 1955, 20, 680-684.
- Erikson, D. A. (Ed.) *Educational organization and administration*. Berkeley, California: American Educational Research Association, 1966.
- Frankenstein, C. *Varieties of juvenile delinquency*. London: Gordon and Breach Science Publishers, 1970.
- Garrett, H. E. *Statistics in psychology and education*, 6th edition. London: Longmans, 1970.
- Green, A. *Sociology*. New York: McGraw Hill Book Company, 1952.
- Gross, N., Mason, W. B., & McEachem, A. W. *Explorations in role analysis*. New York: John Wiley and Sons, Inc. 1966.
- Halpin, A. W., & Winer, B. J. A factual study of the leader descriptions. In R. M. Stogdill & A. E. Coons (Eds.), *Leadership behaviour: Its description and measurement*. Columbus: Bureau of Business Research, The Ohio State University, 1957, 39-51.
- Hammer, T. H., & Dachler, H. P. A test of some assumptions underlying the Parth-Goal model of supervision: Some suggested conceptual modifications. *Organizational Behavior and Human Performance*, 1975, 14(1), 60-75.
- Hargreaves, D. H. *Interpersonal perception in education* (Revised student edition). London: Routledge and Kegan Paul, 1975.
- Heider, F. Consciousness, the perceptual world, and communication with others. In R. Taguiri & L. Petrullo (Eds.), *Persons perception and interpersonal behaviour*. California: Stanford University Press, 1958.
- Hollingshead, A. B. *Elmonts youth*. New York: John Wiley, 1949.
- Horowitz, M., Anderson, G. J., & Richardson, D. N. Divergent views of the principal's role: Expectations held by principals, teachers and superintendents. *Alberta Journal of Educational Research*, 1969, 15(4), 195-206.
- House, J., & Miller, W. Responding to student unrest. *Curriculum Bulletin*, 1973, 27, January, Oregon ASCD No. 315.
- Jones, E. E., & Thibaut, J. W. Interaction goals as bases of inference in interpersonal perception. In R. Taguiri & L. Petrullo (Eds.), *Persons perception and interpersonal behaviour*. California: Stanford University Press, 1958, 151-177.
- Knezevich, S. J. *Administration of public education* (3rd ed.). New York: Harper and Row Publishers, 1975.
- Linowitz, S. M. (Chairman). Campus tensions: Analysis and recommendations. Report of the Special Committee on Campus Tensions. Washington, American Council on Education, December, 1970.
- Manning, F. W. H., & Dubois, P. H. Correlational methods in research on human learning. *Perceptual and Motor Skills*, 1962, 25, 287-321.
- Miklos, E. The role theory in administration. *Canadian Administration*, 1963, 3, November, 5-8.

Nigerian Chronicle. Calabar, Nigeria.

Niles, M. C. H. *Middle management*. New York: Harper and Row Publishers, 1941.

Nwankwo, J. I. Perception of the administrative roles of the principal and the school climate as factors in students' conflict behaviour. Unpublished doctoral thesis, University of Ibadan, Ibadan, Nigeria, 1977.

Oloruntimehin, O. Some factors related to juvenile delinquency in Nigerian children. *West African Journal of Education*, 1974, 17(2), June, 117-122.

Osibov, H. Professional and public perceptions of superintendent behaviours. Doctoral thesis, University of Oregon, Eugene, Oregon, 1961.

Pepitone, A. The determinants of distortion in social perception. In H. Proshansky & B. Sidenberg (Eds.), *Basic studies in social psychology*. London: Holt, Rinehart and Winston, 1970.

Rogers, C. R. *Freedom to learn*. Ohio: Merrill, 1969.

Taguiri, R. Social preferences and its perception. In R. Taguiri & L. Petrullo (Eds.), *Persons perception and interpersonal behaviour*. California: Stanford University Press, 1958.

Waller, W. *The sociology of teaching* (Science Ed.). London: John Wiley and Sons, Inc., 1965.

Williams, R. *The American society*. New York: Alfred Knopf, 1952.

Zalkind, S. S., & Costello, T. W. Perception: Some recent research and implications for administration. *Administrative Science Quarterly*, 1962, 7, September, 218-235.

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Education as a Social Control Mechanism

During slavery, West Indian planters were opposed to the education of slaves. They felt that this might make the slaves more discontent with their conditions and hence more difficult to control. Instead the planters chose to rely on coercive methods of control to ensure compliance with the existing order of the society. However, with the proposed abolition of slavery, they completely changed their attitudes towards education for the black population. They then hoped that with the help of the churches, education would succeed in developing among the black population, voluntaristic support for the exploitative features of slave society even after its legal props were removed by emancipation. (Dr. Bacchus is a Professor in the Department of Educational Foundations at The University of Alberta.)

The Role of Education in Slave and Post-Slave West Indian Society

The existing historical evidence indicates that just before and immediately following the emancipation of slavery, there was a dramatic change in the attitudes of the majority of West Indian planters towards education for the black masses. This paper will (a) examine why this marked attitudinal change occurred; (b) throw some light on how the planters perceived the role of education among the black population; and (c) speculate about the use of education as a mechanism of social control in societies which are increasingly extending citizenship rights to all sections of their population.

However, before discussing these issues, it will be useful to identify some of the essential features of slave society which influenced the attitude of the planters towards the education of the black masses.

Some Features of Slave Society

The major structural features of West Indian society which were mainly responsible for the negative attitude of the planters towards the education of the slaves were:

1. It denied membership in the political system to the slaves who formed the numerically largest population group in these countries.

2. It not only permitted the slaves to be owned like chattels, but sanctioned the whole system of economic production which was based on the exploitation of one group solely in the economic interests of another.

3. Total control of the state machinery rested with the plantocracy. Marx's references to the state as the "executive committee of the ruling class" quite aptly described the political arrangement in slave society.

The major aim of the West Indian planters was to maintain the economic, political and social arrangements of slave society especially since the privileges which they enjoyed from it were phenomenal. The planters were afraid that any change in the system of slavery might start what Myrdal (1964) refers to as a "process of cumulation" which might eventually affect their position of dominance in the society. That is why they continuously opposed most of the changes suggested by the Colonial Office for ameliorating the harsh conditions under which the slaves lived and worked. The editor of the *Colonist* was putting over the views of most planters when he argued that "slavery must exist *as it is now* or it will not exist at all [emphasis added] (*The Colonist*, 1824).

The two major means by which the planters attempted to ensure the stability of slave society were: (a) the use of coercive power over the slaves, both in their role as slave owners and as managers of the state-control mechanisms; and (b) the use of various means of legitimation to bring about a great degree of acceptance of, or at least acquiescence to, the existing political, social and economic system, by the slaves, e.g., through socialization practices directed both at locally born and newly imported slaves, and enacting supporting laws to ensure almost complete dependence of the slaves on the plantations.

A third method that could have been used to help develop legitimacy for the society was possibly a fairer distribution of its wealth, but this would have necessitated changes in the nature of the social order, changes which the planters were understandably unwilling to accept.

While planters relied heavily on the first mentioned mechanism of social control, i.e. the use of coercive power, they were generally aware of the importance of the second mechanism — "proper" socialization. From their own experience they recognized the inherent instability of a social order built upon the sheer use of coercive power and tried to socialize slaves to accept their positions of bondage and the dominance and superiority of their masters. Scholars such as Patterson (1967) have described the socialization process which occurred among creole slaves and the methods used for "seasoning" new slaves recently arrived from Africa. The objective was to develop in them not only the lower-level job skills which were required on the sugar plantations, but also the desired attitudes towards work and to the social order.

Since schooling is often considered one of the more effective institutionalized means of socialization and social reproduction, i.e., of passing on to the young generation those values, beliefs, and social relationships which are supportive of the existing order of society, the question is "Why did the planters not turn to education in this situation? Or more correctly, "Why were the planters so strongly opposed to the education of slave children?", despite the possibilities inherent in schooling of inculcating attitudes and beliefs which might have helped to bring about social stability.

There were many reasons for this. First, education performs both a conservative

and, if not a radical, at least a liberating function. In addition to passing on those values, beliefs, attitudes, and skills which are needed to give support to the existing social order, it can also open up new vistas or new horizons among its recipients. To the planters this meant that if education was made available to the slaves, it might have led some of them to question even more vehemently the morality of a society in which gross inequalities based on race were so firmly institutionalized. As major beneficiaries of the existing system, planters were perceptive enough to know that it was dangerous to allow slaves to acquire knowledge and ideas which might lead them to chafe more heavily under their position of bondage. Rev. John Smith (March 18th, 1818) had observed that generally the planters felt that "to teach the slaves is an impolitick measure" while Gordon (1963, p. 3) noted that one of the planters' objections to slaves learning to read was the realization that "reading provokes thinking and this is dangerous in a slave society." An important concern of the planters was to prevent the aspiration of the slaves from rising, or their feeling of deprivation from increasing. This is why they saw education and slavery as being incompatible.

In addition, the governing classes in Britain who formed the major reference groups for the local planters, were still not convinced about the role of education in pacifying the masses. In fact, it was only in 1833 that the House of Commons approved its first meagre grant to aid the efforts of the voluntary agencies in providing education for the children of the British working class.

Another reason why slave-owners objected to the education of slaves was the fear that once they had acquired literacy skills, it would become even more difficult to monitor their access to new information and knowledge. More specifically, they were afraid that if the slaves learned to read, they might find out about the efforts of the abolitionists in England to end slavery and it was realized that such information might increase their discontent and rebelliousness. Even a more liberal plantation owner like Hermanus Post, who brought the Rev. John Wray to minister to the spiritual needs of his slaves, made it quite clear to the missionary that he should not teach the slaves to read. Similarly, when Wray's successor, the Rev. John Smith arrived in Demerara in 1817, the Governor warned him that if he taught a slave to read and he heard of it, he (Smith) would be banished from the Colony (Daly, 1966, p. 135). Because of this fear of slaves learning to read, the missionaries were expected to use only oral means of instruction in teaching them about religion.

A third reason for the planters' objection to the education of slaves was the fact that most of them had a great distrust for the work of the missionaries, especially the evangelical missionaries, and felt that if a check was not put on their activities they would prove "subversive to good order." They realized the dangers of teaching the slaves that they were equal to the whites in the sight of God, because this might eventually lead them to question not only the gross inequality in the society, but also the moral right of one individual to own and exploit other individuals who were spiritually their equals. According to the *Colonist* (Feb. 18th, 1824), "it is not a matter of surprise that a Negro slave who is taught that all men are equal from a religious point of view should wish the same principle to prevail in politics."

The planters regarded the efforts of the missionaries as being directly responsible for increasing social unrest in the society and, more specifically, for a number of slave rebellions that occurred. The most notable incident was the accusation and trial of Rev. John Smith for complicity in the 1823 East Coast Slave

Insurrection in Demerara. In view of this, the planters felt that any attempt to institutionalize the work of these missionaries through the establishment of schools might sound the death knell of slave society.

The editor of the *Colonist* expressed the views of the planters very clearly when, following the death of Rev. John Smith, he wrote an editorial castigating planters for not speaking out in time against the first advocates of missions and education for the slaves. He pointed out that these advocates should have been told that “the missionary system is, in fact, undermining the institutions and endangering the political existence of the colonies.” Continuing, he (Daly, 1966) noted:

While we have no desire to treat Africans with undue rigour . . . we cannot be ignorant (of the fact) that our power over them can exist only so long as we are more *highly educated* and *enlightened*: We are few; they are many; and if their moral qualities or *education be allowed to equal ours*, it follows that the *power* or the *right* of government *which is the same thing*, will be determined by the amount of physical force [emphasis added]. (p. 254)

This fear that the education of slaves would lead to social unrest and “disorder” was shared by slave owners in other societies. In the United States of America, laws were passed which expressly forbade the education of slaves. Also, in the French West Indies, the Governor of Martinique was using the same argument as the British West Indian planters in trying to prevent the extension of religious instruction and education to the slaves there. In semi-private correspondence to his department in France, he wrote:

I came here with all the European prejudices in favour of the necessity of instructing Negroes in the principles of religion. But sound policy and even more powerful consideration of humanity are opposed to this. The *safety of the whites demand that they should be kept in the most profound ignorance*. . . . The *safety* of the whites, fewer in number, demands ignorance on the part of *the slaves* [emphasis added]. (Augier & Gordon, 1962, pp. 145-146)

H. Coleridge (1832), who made a six-month visit to the West Indies in 1825, summed up thus the planters’ dilemma in the matter of the education of slaves:

If the planters attempt to educate the slave, they do too little for their own safety in persisting to debar him from the privileges to which he would soon feel that he has required an equitable right. *It will be impossible to march Negroes on the road to knowledge and compel them to stand at ease within the old entrenchments of ignorance* [emphasis added]. (p. 321)

Coleridge was very perceptive about the planters’ concern that education of slaves was likely to add another disequilibrating element in the society since it would raise their levels of aspiration which, if not met in some way, would have had serious disruptive effects.

The planters also had an immediate economic interest in not wanting slave children to attend school. At the age of six, these children were already working in the grass gangs making an economic contribution which was enough to cover expenses involved in their upkeep. If they were to be sent to school, the planters had to bear that part of the cost of their education which would have resulted from their lost contribution to production. Also, it was necessary to inculcate good work habits in these young slaves and it was thought that sending them to school might have the opposite effects. As Shirley Gordon (1963) noted:

Keeping slaves busy was one of the most reliable means of keeping them acquiescent. The

principle was applied early in the life of a slave born child; schooling would have been a contradiction of the whole system. (p. 10)

Finally, part of the planters' objections to the education of the slaves might have resulted from their general attitude to the black and coloured population, whom some of them saw as "barbarians," a "good for nothing race of beings" and who, according to the Governor of Martinique, ought to be treated "as one treats beasts." But against this attitude, there was evidence of the ability of the black population to do well educationally since many of them had already qualified as professionals, especially as lawyers, after studying in British institutions of higher education. So though there were some doubts about the educability of the black population, these were not as widespread as in other societies.

Incidentally the planters were not opposed to allowing slaves to acquire training in specific skills needed on the plantations. Despite the restrictions imposed by some West Indian Governments against allowing slaves to do skilled work, most of the estate craftsmen such as boilermen, coopers, carpenters, and masons were slaves and obtained their training for these jobs within the slave system. Because of the superior status and additional privileges enjoyed by these tradesmen, many slaves avidly sought the opportunity, either for themselves or for their children, to be apprenticed to a tradesman. In addition, they were prepared to make the necessary "investment" to obtain such training by giving up their spare time and the opportunity they had to work on their own plots of land in order to cultivate the farms of those slaves to whom they were apprenticed.

While the planters facilitated this manpower training function of education, they were opposed to giving slaves access to the content of knowledge and information, and to their acquisition of literacy skills which would have opened up to them possibilities for further learning. They felt that the likely consequences of this would be detrimental to the stability of slave society. It might give slaves a new dimension to their thinking, raise their levels of social, economic, and political aspirations and lead them eventually to question and challenge even more actively the legitimacy of the society in which they were considered chattels existing mainly for the economic benefit of their masters. The inevitable sequence, as the planters saw it, was "read the bible, then the newspaper till they grow discontented, rebel, and burn the country" (Waddell, 1863, p. 195).

In summary, it was not that the West Indian planters were entirely unaware of the possible role of education in helping to produce a submissive black population and a pliant work-force, but that they were very hesitant to take what seemed to them to be the great risks that might have accompanied the formal education of slaves. As Rooke (1977) indicated

The planters were as unreceptive to an education which taught any form of equality between slave and master as one which included reading. They saw social stability being threatened as much by the assumptions behind missionary education as by the practice of it. Doctrines of spiritual equality exposed the contradiction inherent in slave societies. As the planters correctly recognized, teach a slave he is lovable in the sight of God and he was bound to become "uppity" . . . Teach a slave that Christ came to save all men and he will begin to wonder why some men deserve to own slaves while others deserve to be slaves. (p. 196)

Rev. John Smith came to a somewhat similar conclusion when he reported to the Directors of the London Missionary Society in 1818 that even those planters

who did not question the original intention of the missionaries to make better slaves and inculcate submission and similar dispositions feared that education would “ultimately have a bad effect. The most innocuous education was merely a first step to creating a more self-conscious group of subservients.” In summary, the planters knew that “Christianity and slavery cannot long exist together” and were therefore “resolutely opposed to any form of instruction” for slaves (Rooke, 1977, p. 197).

There were also problems which adversely affected the degree of success of the planters’ efforts at producing a docile slave population. First, those slaves who were newly arrived from Africa were not socialized in their early days to accept a life of bondage and many of them actively showed their resentment to being kept as slaves. Second, as C. L. R. James indicated, it was difficult to subdue the slave’s dream of freedom. During their midnight celebrations, they would often sing their favourite song which, translated into English meant, “we swear to destroy the whites and all that they possess; let us die rather than fail to keep this vow” (James, 1973, p. 16).

Third, there was never, and in the circumstances unlikely to be, any consensus between the two groups to the *raison d’être* of the society — not even any shared view of the complementarity of their separate ends. The social order was a good example of what Hobbes saw as the ultimate outcome of societies in which one group controlled all the power without any major institutional restraints on their desires or greed. Furthermore, there was no shared belief system or ideology which would have justified or rationalized the existing distribution of wealth and power.

Fourth, the difficulty of getting the slaves to accept the existing economic order was aggravated by the contrasting conditions of life between the two groups — the vast wealth conspicuously consumed by the planters as compared to the conditions of degradation experienced by the slaves. The feeling of deprivation must have been further enhanced by the fact that the slaves saw whites who formerly worked alongside them, mainly as indentured labourers, rising up the economic and social ladder once they had obtained their freedom. Commenting on circumstances like these, Moore (1963) pointed out:

On the evidence, it appears extremely unlikely (a cautious way of saying “impossible”) that any mode of rewarding positions unequally and any mode of determining access to those positions should be so firmly institutionalized that those persons most injured would accept the justice of their fate . . . the rules governing assignments to positions and their unequal rewards, and the values that “justify” these rules, will not be accepted as totally valid by those who are thereby excluded. (p. 83)

With the understandable absence of any shared normative order to regulate the inevitable “war of all against all,” and the relative failure of efforts at socializing the slaves to accept their position of bondage and their exclusion from citizenship, the planters depended heavily on the raw use of power in their attempts to maintain order in the society. As James (1963, p. 4) pointed out, it became necessary to create “a regime of calculated brutality and terrorism” in order “to cow them (the slaves) into the necessary docility and acceptance of the social order.” The concentration of political power in the hands of the planters gave them almost monopolistic control and legalized use of the means of violence at the command of the state, and historians report that these were often ruthlessly used to suppress any incipient signs of group or even individual aberrant behaviour.

In short, with the perceived ineffectiveness or failure of the methods of socializing the slaves to accept the existing order to society, the planters depended predominantly on physical control mechanisms and the legalized use of violence to prevent social disruption.

Emancipation and After

By the 1830s, it was known that the Government of the United Kingdom was going to abolish slavery throughout the British Empire and while the planters had considerable control over their local legislatures they were powerless to prevent the introduction of such a bill in the British Parliament. This new situation posed a problem for the planters and helped considerably to bring about a change in their attitudes towards education for the mass of the black population. The planters wanted to maintain some of the basic features of slave society and especially the exploitative relationship which existed between themselves and the black masses — even after the legal props which supported the system of exploitation were withdrawn.

It was feared that the act for Abolition of Slavery might result in the slaves taking steps to prevent this further exploitation by the planters, even if this meant removing themselves from the sugar plantations and settling elsewhere in the country. In addition, they might no longer be willing to accept, without challenge, the superior social and economic position which the whites traditionally enjoyed in the society — a factor which gave support to the belief among the nonwhites in the “natural superiority” of the European and his culture.

The planters therefore took a number of steps to ensure the continued dependence of the slaves on the plantations. For example, they refused to sell or lease land to ex-slaves who, during the period of apprenticeship, had saved some of their wages for this purpose. Even if some planters did, they asked exorbitant prices for their land making it difficult for an economically viable peasantry to develop. In addition,

the provision grounds, plantation walks and fruit trees cultivated and reared by the peasantry while in bondage were destroyed on many estates in order to control their (the peasants’) dependence on plantation work. (Martin, n.d., p. 175)

Another important step taken by the planters in this direction was to attempt to build up voluntaristic support on the part of the masses for the exploitative system. There were, among others, two specific and important commitments which had to be inculcated. One was to develop or strengthen the idea that hard work as an estate labourer was a social and moral obligation on the part of the labouring classes. The second was a belief in the superiority of the European and his culture and an acceptance of the view that only Europeans, or those most like Europeans in their values, had the right to occupy positions in the upper strata of the society.

In other words, the planters were now concerned with legitimating the existing social and economic order of “plantation society,” essentially slave society without legalized slavery, by inculcating normative support for it on the part of the masses. For this they began to turn to education. In fact there were a number of reasons for this change in attitude to the education of the black population.

First the Act for the Abolition of Slavery, to which they were opposed, was introduced above their heads by the British Government, adding an important new variable into the situation. Since they could no longer depend on the legalized use

of the coercive power of the state to ensure compliance by the masses, planters were forced to look at alternative means of social control. Developing normative support for the social order through education thus became a much more attractive proposition.

Second, the Act of Emancipation included a grant of £30,000 per annum for five years to promote education among the ex-slaves, and the Imperial Government had decided that the “religious and moral” education which “must form the basis and must be made the inseparable attendant” of any education “for the Negro population to be emancipated” was to be provided “through the agency of the different religious bodies already engaged in promoting education in the Colonies” (Gordon, 1963, pp. 20-21). Therefore, not only was the provision of education for the masses a *fait accompli* as far as the planters were concerned but so was the involvement of the churches in these efforts. While the planters were very critical of the educational efforts of missionaries, they had much more faith in the work of the established churches and, in some islands, the Moravians. It was therefore in their interest to ensure that these particular religious groups were given maximum support in the provision of education among the masses.

Third, the increasing willingness by the British ruling class to accept the view that “appropriate” education provided by the more conservative religious denominations could further assist in the domestication of the “lower orders” would also have influenced the planters’ attitudes to the education of the black masses.

Education for this group contributed to social stability in another way. It was unlikely that any section of the population would willingly accept its position on the lowest rungs of the social and economic hierarchy especially if, as in the case of the ex-slaves, they were in the majority, unless they saw the possibility of later social advancement for themselves or their children, or unless they shared some religious or other ideological belief which restrained their ambitions. Even though social mobility was difficult and, for the majority of the black masses, well nigh impossible, education held out some promise of social advancement and gave its recipients a hope, unrealistic though it might have been for the great majority, of rising somewhat up the social and economic ladder. While this was not the purpose of education as conceived by the planters, it nevertheless became the most important one to the ex-slaves who valued education mainly as an instrument of upward social mobility for their children.

(1) The first major role of education as seen by the planters was therefore to produce a pliant and submissive work force, a view shared by the more influential Christian churches of the day. This function of education was also strongly supported by Rev. J. Sterling who, during the apprenticeship period, was appointed by the British Government to review the educational situation in the West Indies. In his report, he emphasized the importance of education as an instrument which would help the planters develop such “power over the minds of the labouring classes” that a continued supply of labour for the sugar plantations would be ensured. He noted that:

The peace and prosperity of the Empire at large may not be remotely influenced by their (the ex-slaves) moral condition. . . . Their performance of the functions of the labouring class in a small civilized community will depend entirely on the *power over their minds* of the same prudential and moral motives which govern more or less the mass of the people there. If they are not so disposed as to fulfill these functions (as labourers), property will

perish in the colonies for lack of human impulsion. . . . The certain result of the new situation when the minds of people are all in movement will be a *consciousness of their own independent value as rational beings without reference to the purposes for which they may be profitable to others*. The law having determined and enforced their civic rights the task of bettering their conditions can be further advanced only by education [emphasis added]. (Gordon, 1963, pp. 20-21)

As can be gleaned from the above quotation, there were then three major concerns in providing education for the masses.

(a) It was to assist in producing labourers who would be docile, obedient and willing to continue working on the sugar estate. This view was also advanced in the *Colonist* — a newspaper which had previously objected strongly to the education of the slaves. Its new argument was that education:

Should be directed to motivating the Africans to work and respect authority. . . . They should learn that idleness is a crime against a higher law as well as an infraction of the social duty and that the commandment which tells them to keep holy the seventh day is equally explicit in requiring them to labour during the six. (Daly, 1966, p. 264)

This attitude was shared by the dominant groups in the other West Indian territories. For example, in January of 1892, about sixty years after the abolition of slavery, the *Agricultural Reporter* was still bemoaning the fact that:

In our elementary schools, we are teaching Geography and Grammar and History and Singing and so forth. . . . We are neglecting studies which would teach the rising generation, not only the dignity of manual labour but how to *labor freely to get their living in that sphere of life into which it has pleased God to call them*. . . . The sons and daughters of the labouring classes have been impregnated with the idea that the education which is imparted to them makes them better than their fathers; and they have begun to look with disdain upon mere manual labour. . . . Unless steps are taken to put an end to this state, the most disastrous consequences must ensue [emphasis added]. (Gordon, 1963, p. 135)

Even Her Majesty's Government which provided money for the education of the children of ex-slaves, had hoped that "the labouring classes will be animated by the same spirit of steady and patient industry which ought always to accompany good instruction" (Circular Dispatch, 1st Oct. 1838). Latrobe, the Inspector of Schools sent out by the Imperial Government in 1837 to report on the results of the first two years of the Negro Education Act used the same criteria in assessing ongoing educational programs. "I shall," he remarked,

be inclined to doubt the wisdom or real kindness of any system or mode of instruction which will lead either the parents or the child to reason falsely on the subject *by not strongly impressing upon their minds the necessity* of submitting to labour [emphasis added]. (Gordon, 1963, p. 30)

(b) A second concern was to teach the masses to accept their place in society and not attempt to upset the status-quo. Again the *Colonist* argued,

Education should break down false ideas of independence which teach the Negroes to disregard the diversities of rank and condition of life imposed for wise purposes. They should be brought practically to love honesty, sobriety, reverence to authority and a Christian respect for all whom Providence has placed in a superior condition. (Daly, 1966, p. 264)

The first Inspector of Schools for British Guiana knew that the ruling class perceived elementary education for the masses as an instrument of social control

and capitalized on this fact whenever he attempted to secure more funds for education. He argued that “money laid out for the encouragement of virtue and the removal of ignorance is a far more profitable investment than that spent on the repression of punishment and crime” (Special Report, Government of Great Britain, 1901, p. 754).

And in the same vein, the editor of the *Royal Gazette*, another local newspaper which represented the views of the planters, reasoned that since the Government had accepted the responsibility for institutions such as prisons, the police force, and the courts, “it would be justified in building schools and paying teachers to prevent crime” (Daly, 1966, p. 264). Since almost any transgression against the planter class was, at the time, likely to be considered a crime, it was obvious that the editor was concerned with the potential role of schools in preventing the spread of deviant attitudes and behaviours among the black masses.

(c) A third concern was the “religious and moral conditions” of the ex-slaves. This could, for example, be seen in the efforts of the Colonial Secretary to get the West Indian assemblies to introduce compulsory education for the masses, at least three and a half decades before such legislation appeared in England. In his correspondence to the West Indian Governments, the Secretary of State for the Colonies (1835) argued:

Whatever objection may exist in more advanced societies to the principle of compulsory education they can have no place in reference to a colony in which the great mass of the people have just emerged from slavery but have not yet generally acquired any acquaintance with the principles and precepts of Christianity and are for the most part destitute of the first elements of learning. . . . The advantages (of education) are so great (for them) that if necessary, the members ought to have it forced upon them by legislative process.

(2) The second major role of education as perceived by the ruling groups was to develop or strengthen among the ex-slaves a belief in the natural superiority of the European and his culture. This was important to give legitimacy to their position as rulers of the society occupying the topmost rungs of the social and economic hierarchy. Overall, West Indian schools were very successful in this role and helped to produce a West Indian elite who not only accepted the superiority of English culture but in most ways became black Englishmen. Smith (1967) observed that one of the basic facts of West Indian creole society was that it was integrated around the conception of the moral and cultural superiority of things British.

These efforts at socializing the black West Indian masses to accept the cultural superiority of the Europeans were also manifest in French West Indian islands. For example, Fanon (1967), who was himself from the French West Indian island of Martinique, observed:

Until 1936, the West Indian lived, thought, dreamed, composed poems, wrote novels exactly as a white man would have done. . . . The West Indian identified himself with the white man, adopted a white man’s attitude, was a white man. (p. 26)

It was these new roles which education was expected to perform in “civilizing” and “tempering the masses” which contributed substantially to the change in the attitudes of West Indian planters towards the provision of education for the children of the ex-slaves. Therefore, just before and immediately following the abolition of slavery, educational activities in the British West Indies were intensified, often with the active support, or at least with little or no opposition

from the planters who, a few years previously, had strongly objected to the education of the children of slaves.

Summary and Conclusions

During slavery the sugar planters strongly opposed formal education for the slaves. They were not interested in its possible contribution in socializing the masses to accept, or at least to be reconciled to, the values which underpinned that society. The potential dangers of educating slaves were too great for the planters to consider it a feasible course of action. They believed that it might have opened up new horizons to the slaves, raised their level of social and occupational aspiration, made them “uppity”, and increased their dissatisfaction with the conditions under which they worked and lived. It was further thought that education might have led the slaves to challenge even more actively “the right of government” to uphold the institution of slavery which allowed the planters to own and exploit them entirely in their own economic interest. As the editor of the *Colonist* argued, “our (the planters’) power over them (the slaves) can exist only so long as we are more highly educated and enlightened” (Daly, 1966, p. 254).

Instead, the planters depended partly on their own methods of socializing or “seasoning” the slaves and more heavily on the use of physical violence to ensure conformity and social stability. In this they had the full support of the law which allowed them almost indiscriminate use of physical punishment to cow the slaves into submission and subservience. Planters did, however, permit slaves to acquire skills needed for their work on the plantations through an informal system of apprenticeship.

But with the proposed abolition of slavery there developed the fear that unless something was done to get the slaves to accept “voluntarily” the major features of plantation society they would, as Rev. Sterling (1835) had warned, “become conscious of their own independent value as rational beings *without reference to the purpose for which they may be profitable to others.*” The ultimate result of this would have been that “property will perish in the colonies . . . [and] the whites would no longer live there.” To prevent this “disastrous” situation from developing it was argued that the “*systematic provision (of educational facilities) for their mental improvement*” and for developing a “*wholesome attitude to work*” was needed. [emphasis added].

It was in the face of this dilemma that the planters began supporting education for the black masses. In this they received the active support of most of the Christian denominations, especially the established churches. The churches and the schools reinforced each other in their attempts to socialize the ex-slaves to perform well “the functions of a labouring class in a civilized community” (Sterling Report, 1835). As R. T. Smith (1962) noted, “schools and churches were held to be the best instruments for the transformation of a rebellious slave population into a peaceful and obedient working class” (p. 145).

The schools were largely successful in these efforts and helped to produce a West Indian population who, as Fanon (1967) pointed out, were European in their values, behaviours, and even in their ways of thinking and expressing themselves. There were, however, important unintended consequences of these educational efforts which also produced “deviants” who were later influential in bringing about political changes in these societies which ultimately led to the transfer of formal

political power from the white minorities to the elected representatives of the masses.

Some Speculative Observations

In any society, the maintenance of social stability depends jointly on: (a) how successful the instruments of socialization are in getting nearly all sections of the population to accept the legitimacy of the existing social order and its institutionalized ways of dealing with opposition; and (b) how effective the control mechanisms of the state are — the police, the armed forces, the courts and sometimes even the news media — in containing disruptive elements in the society. These state control mechanisms essentially attempt to ensure that those “deviants” who have not been “properly socialized” to accept the existing social order or to use the institutionalized means of bringing about changes are rendered ineffective in their efforts to upset the existing society by “illegal” means.

These two methods of social control have to be seen as complementary — the more “effective” the process of socialization the less need there is for the active use of the other control mechanisms of the state.

Education, because of its dominantly conservative role, has generally been considered one of the more useful means of socialization and many educational philosophers have argued the point that the more efficient the school system is, the less need there will be for other institutions of state control, such as the army, to ensure internal social stability. For example, as Massialas (1969) noted, “the German philosopher and educator Fichte made a strong case for the nation to invest in education because education would fulfill the same purposes that standing armies fulfill; viz the support and maintenance of the State” (p. 2).

The relative emphasis which a nation places on education against other social control mechanisms will no doubt be influenced by (a) the extent to which the ruling groups have accepted the view that full political and economic membership of the state should be extended to all its citizens and is moving in that direction; (b) the existence of marked inequalities in the society without religious or other ideological support for such inequalities.

States which are moving towards granting more citizenship rights to all its members are likely to depend increasingly on education and less on the use of physical control mechanisms in their efforts to ensure social stability. This will be true even of societies which are characterized by gross inequalities in the distribution of wealth and status without any accepted religious or other ideological *support* for such inequalities. In such situations, the problem of social stability will loom larger and the state will likely depend at first on the use of physical control mechanisms to prevent social disruption. But as it moves to widen areas of citizenship to all sections of the population, its use of education in political socialization, i.e., developing acceptance of the social order, is likely to increase. Schools will attempt to instill in their students the ideals which are supposed to be embodied in the political system and to prepare them to take an active role in it or develop confidence in those who manage it. This contribution of education to such efforts is likely to be more effective if interlaced with some religious or ideological belief. Religion, which Marx described as “the opium of the masses” is often seen as an effective instrument in domesticating the demands of the “lower classes” — a condition which is usually considered a necessary prerequisite for granting them more citizenship rights.

Further, since education is often a means of upward social and economic mobility — even though its role in this direction in well established, hierarchically structured societies is often more apparent than real — it helps to nurture the general belief among the population that their society is open and its rewards are mainly distributed on the basis of one's own efforts. This gives education an important role in the containment of potential conflict and in the "cooling off" of aspirations which are unsupported by educational achievement. This point was recognized by the National Commission on Civil Disorders in the U.S.A. In its Report (1968) the Commission observed that

Level of schooling is strongly related to participation (in riots). Those with some high school education were more likely to riot than those who had finished grade school. High levels of education and income not only prevent rioting but are more likely to lead to active responsible opposition to rioting [emphasis added]. (p. 425)

Increasingly, as schooling spreads and as citizenship rights widen, academic and other forms of achievement become more acceptable bases for social and economic differentiation. As this happens, the dependence on religion to give "moral" support to existing societal inequalities decreases. Also, as schools succeed in inculcating those values which are supportive of the existing social order and developing a wider popular acceptance of inequalities based on achievement, the need for the use of physical mechanisms in ensuring social stability diminishes except where there are gross and obvious discrepancies between the values inculcated by the school and the realities of life in the society. Incidentally, it should be noted that the decision of a state to expand education might not reflect any desire of the rulers to extend citizenship rights to the population, but that education might be seen simply as a means of technical manpower formation.

In review one sees that, in the West Indies, as it became necessary to extend certain citizenship rights to the ex-slaves, the planters changed their attitudes to the provision of education for this group. Schools were rapidly established under the auspices of various religious groups in the immediate post-emancipation period and one of the major aims of the education offered was to get the new generation to accept some of the basic values which provided the "moral" underpinning for the "new" plantation society. These citizens of the future were taught in schools to accept the superiority of the European and his culture, to be content with their positions in life, and to be obedient citizens. As Professor Braithwaite (1967) argued, the educational goals in the West Indies during this period were based

on the incorporation of slaves as citizens, with the church being used as an agency for this purpose, and its teaching stressing one's duty to one's neighbour, the virtue of humility, the need to carry oneself lowly and reverently before one's teachers, masters and betters, to be content with one's lot and to be an obedient citizen. (p. 18)

Education gradually became very effective in helping to develop in the society a strong support for inequality which was based on achievement. In fact, the gradual decline in the importance of church control of education in the West Indies can, to some extent, be seen as related to the success which education had in developing public acceptance in the society of marked inequalities which seem to be based on the achievement of individuals or their families.

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References

- Agricultural Reporter*, January, 1892, reported in Gordon.
- Augier, F. R., & Gordon, S. *Sources of West Indian history*. London: Longmans, 1962.
- Braithwaithe, L. E. The school curriculum and the emergent needs of society. In *Report on Conference on Teacher Education in the Eastern Caribbean*, V. WI. Institute of Education, 1967.
- British Government. *Circular Dispatch*, October 1, 1838, reported in Gordon.
- Coleridge, H. N. *Six months in the West Indies in 1825*. London: John Murray, 1832.
- The Colonist*, February 18, 1824.
- Daly, V. T. *A short history of the Guyanese people*. Georgetown, Guyana: Daily Chronicle, 1966.
- Fanon, F. *Towards the African revolution*. New York: Grove Press Inc., 1967.
- Gordon, S. *A century of West Indian education: A source book*. London: Longmans, 1963.
- Government of Great Britain, Board of Education. *Special report on education subjects, Vol. 4: Educational systems of the chief colonies in the British Empire*, H.M.S.O., 1901.
- James, C. L. R. The slaves. In L. Comitas & D. Lowenthal (Eds.), *Slaves, freemen, citizens: West Indian perspectives*. New York: Anchor Books, 1973.
- Latrobe, C. *Report on the Windwards and the Leewards*, 1838, reported in Gordon.
- Martin, R. M. *The British colonies, their history, extent, conditions and resources*. London: J & F Tallis, Vol. 8, undated.
- Massialas, B. *Education and the political system*. Reading, Mass.: Addison-Wesley Publishing Co., 1969.
- Moore, W. E. *Social change*. New York: Prentice Hall Inc., 1963.
- Mydral, A. The principle of cumulation. In A. Etzioni & E. Etzioni, (Eds.), *Social change*. New York: Basic Books Inc., 1964.
- Patterson, O. *The sociology of slavery: An analysis of the origins, development and structure of Negro slave society in Jamaica*. London: McGibbon & Kee, 1967.
- Report of the National Advisory Committee on Civil Disorders. New York: Bantam Books Inc., 1968.
- Rooke, P. T. *The Christianization and education of slaves and apprentices in the British West Indies*. Ph.D. thesis, The University of Alberta, 1977, (unpublished).
- Secretary of State for the Colonies. *Circular dispatch to governors*, 15th October, 1835.
- Smith, Rev. J. *Communication: Smith to Burder*, March 18th, 1818 (Box 2, Br. G/D 1815-27), London Missionary Society Archives.
- Smith, R. T. *British Guiana*. London: Oxford University Press, 1962.
- Smith, R. T. Social stratification, cultural pluralism and integration in West Indian societies. In S. Lewis & T. G. Matthews, (Eds.), *Caribbean integration*, Rio Pedras: University of Puerto Rico, 1967, p. 234.
- Sterling, Rev. J. Report to the British Government, 11th May 1935. See Gordon.
- Waddell, H. M. *Twenty-nine years in the West Indies and Central Africa. A review of missionary work and adventure*. London, 1863.

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Identical and Reverse Visual Pattern Recognition in Deaf Children

Twenty deaf children were presented with a pattern recognition task. The purpose was to investigate the development of pattern recognition and pattern reversal in the deaf child aged six through eight, and its relation to age of exposure to a gestural symbol system. Results indicated that (1) same pattern recognition was significantly higher than reverse pattern recognition, (2) age of exposure to a gestural symbol system did not affect performance on same pattern or reverse pattern recognition, and (3) age affected performance on same pattern recognition but not on reverse pattern recognition. Results are discussed in terms of a developmental hierarchy in pattern recognition tasks. (Ms. Bragman has worked with children with a variety of handicapping conditions and is presently supervising practicum students in Special Education; Dr. Hardy is a Professor in Human Development at the University of Maryland, College Park, Md.)

The ability to recognize patterns, according to numerous studies, is seen as a necessary component for processing information and the development of cognitive processes (Anderson, 1975; Bower, 1975; Flavell, 1963, Piaget & Inhelder, 1956). Pattern recognition has been related to the development of mathematics (Davis, 1972; Lovell, 1971; Piaget, 1972; Sternberg, 1975); language development (Sternberg, 1975); problem solving (Gagné, 1970); knowledge component in learning (Bloom, 1956); and the elements of intelligence (Guilford, 1967). The ability to recognize patterns has also been used as a component of many intelligence tests as a means of assessing a child's cognitive functioning (Leiter, 1959; Raven, 1956; Thurston, 1938; Weschler, 1967). Research in pattern recognition tends to show that there is a hierarchy in cognitive ability beginning with the ability to match patterns by the age of four and five, and the ability to display reversals by the age of six and seven (Flavell, 1963; Piaget & Inhelder, 1956; Sternberg & Larson, 1976).

Sternberg and Larson (1976), developed a hierarchy in pattern recognition for

normal children considering the aspects of pattern sequence, stimulus property, and pattern task. In a study of 96 subjects from pre-kindergarten to first grade, they noted there was a significant difference between subjects due to grade, ability and task. More significantly, an interaction was found between grade level, ability level, and pattern task, indicating support for Piaget's contention that cognitive development is not simply a grade-level or ability-level phenomenon.

The literature on the cognitive development of hearing impaired children addresses the issue of the role of language in cognitive development. Furth (1973) extends Piaget's theory of development and emphasizes that development of cognitive processes of the deaf is the same as in hearing children. He feels that the reason most deaf children perform poorly on the tasks is due to the linguistic quality of the tasks asked of them. Furth (1973), in a study of a group of deaf children, six to fourteen years of age, and hearing children of the same ages, found that there was no consistent differences between deaf and hearing children on symmetry or sameness. It was noted, however, that there were fairly large differences in favour of hearing children on opposites. Furth suggested this was due to some extent to the limitations presented by sign language in expressing opposites, and felt that there may be a slight lag in deaf subjects of one to two years. This differed from previously reported lags of five to ten years. Furth also maintained that deaf children exhibited the same capacity as hearing children in inference, if the linguistic component was eliminated. However, Suppes (1974) questions this assumption regarding the inference test, since even the simple inference tasks given young normal children (aged six and seven) are too difficult to test outside of a verbal context.

Bert and Roberts (1976) have studied the early cognitive development of hearing impaired children. In their study involving 16 deaf children, it was shown that subjects progressed normally through the period of sensorimotor development, except in the area of vocal limitation. Tomlinson-Keasey and Kelly (1974) also felt that the early cognitive development of deaf children was normal; however, they felt that from 18 months to four to five years of age, the child becomes frustrated if he lacks models for a well-developed gestural symbol system which would enable him to communicate.

The need for an early gestural symbol system is supported by much of the research. Vernon and Koh (1970) matched 32 pairs of genetically deaf children for sex, age, and intelligence; one group, exposed to manual communication from infancy, was higher by 1.44 years. Meadow (1976) compared 59 deaf children of deaf parents with deaf children of hearing parents and also reported that children with deaf parents ranked higher in academic achievement.

The purpose of this study was to investigate the development of pattern recognition and pattern reversal in the deaf child aged six through eight and its relation to age of exposure to a gestural symbol system.

The findings of Sternberg and Larson (1976) indicate that there is a hierarchy in pattern recognition skills and provide support for the developmental theory of Piaget. They present evidence that the hierarchy in pattern recognition skills begins with same pattern recognition, then develops to reversal pattern recognition, followed by intradimensional shift and finally extradimensional shift. This study attempted to support the assumption that since same pattern recognition develops before reversal pattern recognition, all deaf children, aged six

through eight, would perform better on same pattern recognition than on reversal pattern recognition.

The research of Vernon and Koh (1970) and Meadow (1956) suggested that children who have been exposed to a manual communication system from infancy showed higher academic achievement, of 1.44 years, than those children not exposed to a manual communication system in infancy. Sternberg and Larson (1976) findings indicated that there is a significant performance increase on same pattern recognition at five years of age, though improvement on reverse pattern recognition does not occur until seven years of age. If children not exposed to manual communication at infancy are at least a year behind children exposed to manual communication at infancy, one would expect that the ability to perform reverse pattern recognition would not be as well developed in children not exposed to a gestural symbol system at an early age. This study predicted that the earlier the age of exposure to symbol system the better the performance.

The studies of Sternberg and Larson (1976), Vernon and Koh (1970), and Meadow (1956) reported an interaction between grade level, ability, and pattern task. These findings showed that pattern recognition performance correlates with grade level and ability in combination, rather than with these two factors in isolation. Based on these findings, it was predicted that older children would perform better than younger children on same pattern and reverse pattern recognition.

From the above discussion, three null hypotheses were postulated:

1. For all deaf children, there is no difference in performance in pattern recognition between same pattern and reverse pattern.
2. There is no difference in the performance of the deaf child due to age of exposure to a gestural symbol system on total pattern recognition, same pattern recognition, and reverse pattern recognition.
3. There is no difference in the performance of the deaf child due to age on the total pattern recognition, same pattern recognition, and reverse pattern recognition.

Method

Subjects

Twenty subjects were selected from a total communication deaf school in suburban Maryland; they ranged in age from six years, four months to eight years, nine months. All subjects had been deaf since before the age of three; age of exposure to a gestural symbol system ranged from infancy through four years.

The instrument

The instrument consisted of 20 cards, 14 by 22 inches (35.56 cm by 55.88 cm), 4-ply, white poster board, bearing one model sequence pattern and four choice sequence patterns. Each pattern was made up of 1-inch (2.54 cm) squares of coloured paper as the dimension. On the left side of each card the model pattern sequence was given, represented by the coloured squares. Four patterns were used (ABAB, ABCABC, ABBABB, AABAAB). On the right side of the card four choice pattern sequences were presented. On each card one of the four choice pattern sequences was the same as the model pattern sequence, one was the reverse of the model pattern sequence, and the other two were randomly selected patterns that

included only those colours given in the model sequence. All choice sequences were randomly placed on the cards. Cards were randomly ordered.

Treatment

Each subject was first given the Ishihara Color Blind Test (Ishihara, 1970). No subjects were colour blind. Each subject was then given three practice trials on the pattern recognition tasks. An interpreter was present at all times and gave the following directions:

Look at these colours (pointing from left to right at the model sequence pattern), now look at these colours (pointing, one at a time, from left to right at choice sequence patterns). Point to the one that is the same (or reverse of, depending on the treatment group) as this one (pointing to the model sequence pattern).

If a subject failed to point to a pattern in the choice sequence patterns, the directions were repeated and the correct answer was shown. If after three repetitions of directions the subject still failed to point, the subject was eliminated from the study and another subject was selected from the subject pool. One subject had to be replaced.

Between each treatment there was a five-minute break, and three new practice trials were given before the second treatment was administered. Testing took 30 minutes per subject.

Treatment Groups

All subjects received two treatments. Treatment one was the pattern task of finding the identical pattern match. Treatment two was the pattern task of finding the reverse pattern match. Subjects were randomly assigned to a balanced order of treatment.

Results

Hypothesis 1

The means and standard deviations for the same pattern recognition task were 18.85 and 1.76 respectively, and for the reverse pattern recognition task, 15.15 and 6.94 respectively. The higher the score the better the performance, with the highest possible score being 20. To test the difference between these means, a repeated measure design was run. Table 1 presents a summary of this analysis.

The results indicate that performance on the same pattern recognition task was significantly higher than performance on the reverse pattern recognition tasks [$F(1, 19) = 4.93, p < .05$]. Thus the first null hypothesis that there is no difference for all children in performance between same and reverse pattern recognition was rejected.

Hypothesis 2

Hypothesis 2 was tested by performing a multiple regression analysis to eliminate the effect of order of tasks on performance first, and then to analyze the effect of age of exposure of a gestural symbol system. The multiple R s for effects of age of exposure to a gestural symbol system on total pattern recognition, same pattern recognition, and reverse pattern recognition were .3899, .1178, and .3603 respectively.

TABLE 1
REPEATED MEASURES ANALYSES OF SAME AND
REVERSE PATTERN RECOGNITION

Source	SS	df	MS	F*
Task	136.90	1	136.00	4.93**
Subjects	446.00	19	23.47	
Interaction	427.10	19		
Total	1010.00			

* F of 4.35 needed for significance beyond the .05 level.
** significant, $p < .05$

TABLE 2
ANALYSIS OF EFFECTS OF AGE OF EXPOSURE TO GESTURAL SYMBOL SYSTEM
ON PERFORMANCE ON PATTERN RECOGNITION TASKS

Source	SS	df	MS	F*
<u>Total pattern recognition</u>				
Order	72.20	1	72.20	1.62
Age of exposure	63.41	1	63.41	1.43
Error	756.40	17	44.50	
Total	892.00	19		
<u>Same pattern recognition</u>				
Order	.05	1	.05	.01
Age of exposure	.76	1	.76	.22
Error	57.74	17		
Total	58.55	19		
<u>Reverse pattern recognition</u>				
Order	68.45	1	68.45	1.36
Age of exposure	50.27	1	50.27	1.07
Error	795.83	17	46.81	
Total	914.55	19		

* F of 4.45 required for significance beyond the .05 level.

An examination of these results indicates that age of exposure to a gestural system does not affect performance on any of the tasks. Thus, the second hypothesis that there is no difference in the performance of deaf children due to age of exposure of a gestural symbol system on total pattern recognition, same pattern recognition, and reverse pattern recognition was not rejected.

Hypothesis 3

Hypothesis 3 was tested by performing a multiple regression analysis to eliminate the effect or order of tasks on performance first, and then to analyze the

TABLE 3
ANALYSIS OF EFFECTS OF AGE ON PERFORMANCE
ON PATTERN RECOGNITION TASKS

Source	SS	df	MS	F*
<u>Total pattern recognition</u>				
Order	72.20	1	72.20	1.58
Age	40.74	1	40.74	.89
Error	779.06	17	45.83	
Total	892.00	19		
<u>Same pattern recognition</u>				
Order	.05	1	.05	.02
Age	13.19	1	13.19	4.91**
Error	45.31	17	2.67	
Total	58.55	19		
<u>Reverse pattern recognition</u>				
Order	68.45	1	68.45	1.56
Age	100.31	1	100.31	2.29
Error	745.80	17	43.87	
Total	914.55	19		

* *F* of 4.45 required for significance beyond the .05 level.

** significant, *p* < .05

effects of age. The multiple *R*s for effect of age on total pattern recognition, same pattern recognition, and reverse pattern recognition were .3558, .4756, and .4296 respectively. Table 3 presents a summary of these results.

An examination of these results indicates that age affects the performance on the same pattern recognition, but does not affect the performance on either total pattern recognition or reverse pattern recognition. Thus, the third hypothesis that there is no difference in the performance of deaf children due to age on total pattern recognition, same pattern recognition, and reverse pattern recognition cannot be completely rejected.

Discussion

Since all children performed better on same pattern recognition than reverse pattern recognition, the first null hypothesis was rejected. This supports the previously mentioned position of Sternberg and Larson (1976) that there is a hierarchy in pattern recognition skills and provides support for the developmental theory of Piaget.

Since there was no effect in pattern recognition performance on same pattern recognition, reverse pattern recognition, and total pattern recognition due to age of exposure to a gestural symbol system, the second null hypothesis could not be rejected. These results may be explained in either of two ways. Since mean age of exposure to a symbol system was 1 year 9.5 months, this early exposure to a symbol system may have affected the findings. This is supported by the findings of Tomlinson-Keasey and Kelly (1974) and Bert and Roberts (1976) that early cognitive development of hearing impaired children is normal but there is a need

for an early gestural symbol system between the ages of 18 months to four or five years. None of the children in this study were exposed to a symbol system later than four years of age. This lack of relationship between the age of exposure to a gestural symbol system and pattern recognition tasks can also be further support to Furth's (1973) contention that cognitive development is independent of language.

The age of the subjects affected only the performance on the same pattern recognition but not on the total pattern or reverse patterns. Thus, the third null hypothesis was not completely rejected. This result may also be explained in either of two ways. Since the mean age of the group was seven years, 8.3 months, which is above the age at which Sternberg and Larson (1976) found the skill of reversals to appear, there is the possibility that ability may have confounded the findings. These results, however, can also be interpreted in respect to Furth's (1973) suggestion that the reason for the deaf child's lower performance on opposites is due to the linguistic component of the task. While the task of identical may not have this linguistic component the reverse task may have; therefore, the children's performance was lower on this task due to this component.

This difference in performance becomes clearer when observations were made of the individual performances of the children. Eighty percent of the children were able to perform the same pattern recognition task to 90% competency while only 60% of the children were able to perform the reverse pattern recognition task to 90% competency. Ninety-six percent of the wrong answers given on the reverse pattern recognition task were that of an identical pattern match. By observation of the children during the reverse pattern recognition task, it was noted that all the children could do the specified task on the practice trial; however, they failed to do the task as specified on the actual task. The children would look (or point as in two cases) at the model pattern from right to left and then look at each of the choice patterns from right to left, thereby choosing the identical pattern instead of the reverse pattern. This leads one to question if this is a step in the development of the concept of reverse or the effect of the linguistic component of the concept of reverse, since the children did indeed reverse the patterns.

Further research is indicated in the area of the development of reverse pattern recognition across various populations. This would include children from various language backgrounds that may have different linguistic components involved in the concept of reverse to determine if this is a developmental stage or a linguistic problem.

References

- Anderson, B. F. *Cognitive psychology*. New York: Academic Press, 1975.
- Bert, B., & Roberts, G. Early cognitive development in hearing impaired children. *American Annals of the Deaf*, 1976, 121, 560-564.
- Bloom, B. *Taxonomy of educational objectives. Handbook I: Cognitive domain*. New York: David McKay Co., 1956.
- Bower, G. Cognitive psychology: An introduction. In W. K. Estes (Ed.), *Handbook of learning and cognitive processes*. New York: John Wiley and Son, 1975.
- Davis, R. Naive foundations for a theory of mathematics learning. In W. E. Lamon (Ed.), *Learning and the nature of mathematics*. Palo Alto: Science Research Associates, Inc., 1972.
- Flavell, J. *The developmental psychology of Jean Piaget*. New York: Van Nostrand Reinhold, 1963.

- Furth, H. G. *Deafness and learning*. Belmont, California: Wadsworth Publishing Company, Inc., 1973.
- Gagné, R. M. *The conditions of learning*. New York: Holt, Rinehart and Winston, 1970.
- Guilford, J. P. *The nature of human intelligence*. New York: McGraw-Hill, 1967.
- Ishihara, *Ishihara Color Blind Test Book*. Tokyo: Hanehara Shuppan, 1970.
- Leiter, R. G. *Leiter International Performance Scale*. Chicago: Stoetling Co., 1959.
- Lovell, K. *The growth of understanding in mathematics*. New York: Holt, Rinehart and Winston, Inc., 1971.
- Meadow, K. The effect of early manual communication and family climate on the deaf child's development. In L. Mann & D. A. Sabatino (Eds.), *The third review of special education*. New York: Grune and Stratton, 1976.
- Piaget, J. Mathematical structures and the operational structures of intellects. In W. E. Lamon (Ed.), *Learning and the nature of mathematics*. Palo Alto: Science Research Associates, Inc., 1972.
- Piaget, J., & Inhelder, B. *The child's conception of space*. London: Routledge and Kegan Paul, 1956.
- Raven, J. *Coloured Progressive Matrices*. London: L. K. Lewis, 1956.
- Sternberg, L. Pattern recognition training: A key to mathematics and language skills development. *Teaching Exceptional Children*, 1975, 7, 61-63.
- Sternberg, L., Epstein, M. H., & Adams, D. Performance characteristics of retarded and normal students on pattern recognition tasks. *Contemporary Educational Psychology*, 1977, 2, 209-218.
- Sternberg, L., & Larson, P. The development of pattern recognition ability in children. *Contemporary Educational Psychology*, 1976, 1, 146-156.
- Suppes, P. A survey of cognition in handicapped children. *Review of Educational Research*, 1974, 74, 145-176.
- Thurston, L. L. *Primary mental abilities*. Chicago: University of Chicago Press, 1938.
- Tomlinson-Keasey, C., & Kelly, R. R. The development of thought processes in deaf children. *American Annals of the Deaf*, 1974, 119, 693-700.
- Vernon, M., & Koh, S. Early manual communication and deaf children's achievement. *American Annals of the Deaf*, 1970, 115, 527-536.
- Weschler, D. *Weschler Intelligence Scale for Children*. New York: The Psychological Corp., 1967.

WERNER LIEDTKE

and

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Games and Game Settings for the Preschool Child

The ideas for game settings and the general comments in the article were selected from the summaries of two observational projects. For one setting, games were designed. These games had one common element — there existed the possibility for the use of some sort of strategy. The following sample questions illustrate the main focus of attention as game playing behaviour was observed: Will young children be able to give reasons for their own or their opponents' moves? Will they modify their "strategy"? Will they copy an opponent? Can they give reasons for a move made by an opponent? For another setting, unfamiliar and familiar game-boards were presented to the children who were asked to invent their own games and rules, or to describe how they thought a particular game was to be played. (Mr. Liedtke is an Associate Professor in the Faculty of Education, and Ms. Stott is an elementary teacher in Leduc, Alberta.)

The statement, "Let's play a game" is more than likely to arouse a favourable reaction from most children. Even preschool children will show enthusiasm and excitement when the word game is mentioned. One five-year-old summed up how he felt about playing games by stating emphatically, "Yeah, that was neat. I never get tired of games — no way." Her comment illustrates how most of the four-, five-, and six-year-olds felt who took part in two different projects¹ that involved a variety of games. As part of these projects, the young children were observed in different game settings. The children were given an opportunity to react to the rules they were using. They also had a chance to modify existing rules and to create rules and games of their own. Of all the different observations that were made during the projects, one result stands out above all others. Given an opportunity, young children are all too eager to participate. They enjoy the involvement, ideas are exchanged freely among peers and with adults in charge, and a lot of satisfaction seems to be derived by the children from being able to present their own ideas or suggestions.

In the paragraphs that follow, some of the games and game settings that were used during the aforementioned projects are described and illustrated. It is hoped that the reader can make use of some of these games and ideas either as a

supplement to an existing collection of games, as a beginning to a collection suitable for young children, or for settings where young children's behaviour and/or thinking is observed.

Several of the game settings involved advancing a marker on a gameboard by matching steps to be taken by this marker with the number of dots shown on a homemade number cube or die (sponge cube with felt markings). Teachers of young children know that this matching procedure can be a difficult task for some children. The most common mistakes include counting the space occupied by the marker as the first step, assigning more than one number to a step, and skipping a space while counting steps. One activity and one game setting that can be used to assist young children who make these mistakes consist of the following. The children take turns rolling a number cube (i.e.,

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). After each roll, the children are asked to hold up as many fingers as there are dots and to take as many steps as there are fingers or dots. For the game, two or more children line up against a wall and take turns rolling or dropping a number cube. The child who has rolled the number cube holds up as many fingers and takes as many steps away from the wall as there are dots on the cube. The child who is the first to get across the room to the opposite wall is declared the winner. It is fascinating to observe the development of "step-taking strategy" as some four-year-old children attempt to play this game of "Race Across the Room." It may take as many as three or four games and a few appropriate comments from the opponent, such as "I won again," or "I think I won because I take big steps," before these young children realize that it is advantageous to take "larger" steps. However, more than one four-year-old child was encountered who was not moved by either comments or by losing a game. The playing style was not changed; small steps continued to be taken.

During the projects an attempt was made to accommodate different ability and age levels for various game settings. To accomplish this, slight variations were introduced. For example, the changes that were made for the game "Race Across the Room" included: showing greater numbers on the cubes, showing different arrangements for numbers, using number names or numerals, including zero as one of the possibilities on the cube, and using numbers and number names.



Figure 1

Any setting that involves rolling a number cube or die and advancing a marker along a track of some sort can be a learning experience for a young child, since the strategies of matching and counting are involved. Some five-year-old children are ready for the variation that involves rolling two number cubes and then advancing a marker according to the number of dots shown on both of these cubes. In this setting, the children should be allowed to use and/or develop their own strategies for finding the total after each roll. If that is the case, different methods of solving the problem will surface and the children who are observing each other will become aware of the fact that there exist more than one way of finding the answer.

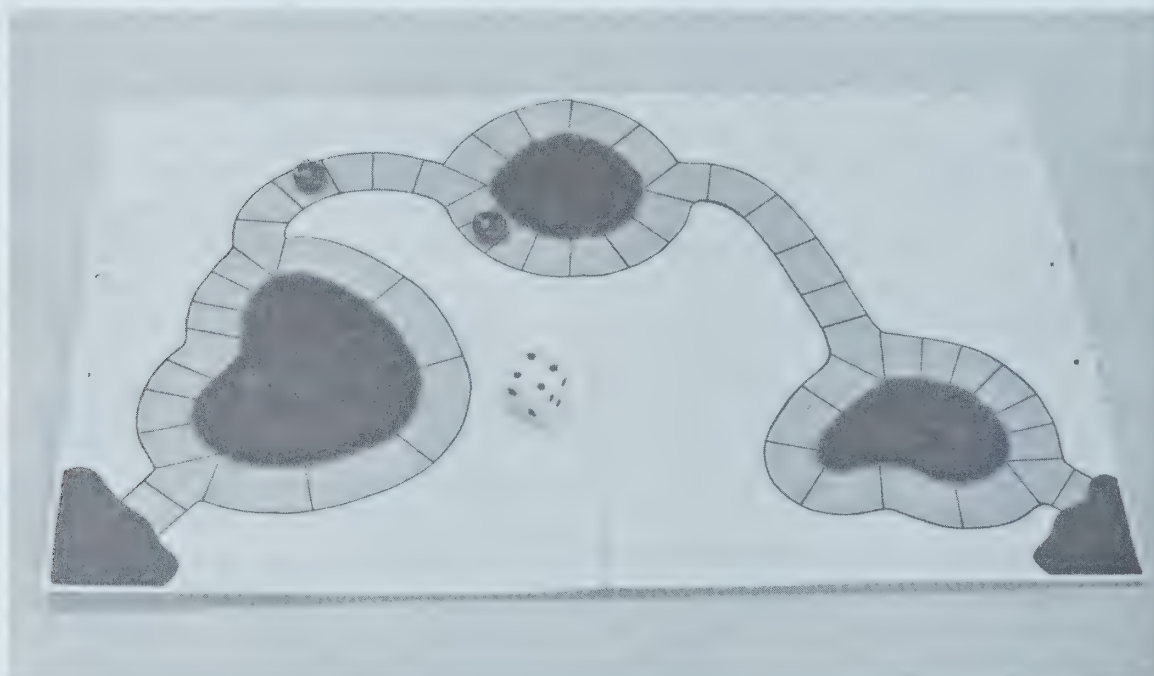


Figure 2

The strategies of matching and counting are involved in the “Frog Race” setting illustrated in Figure 2. For this game, a number cube is rolled, a marker (frog) is advanced, and the winner is the child whose frog is the first to get to the other side of the gameboard. However, as part of the game setting, young children are given an opportunity to make decisions. As they advance a marker across the board, they may choose between routes. The setting is such that the longer looking path is actually shorter, or vice versa, or two paths that look to be the same are actually different. As part of one project, the children were asked to verbalize their reasons for taking a certain route. The majority of responses indicated, as one would expect, that young children rely heavily on perception and make decisions accordingly. Two simple variations for this game setting consist of reducing the number of choices or “grassy spots” or substituting number cubes with different markings (Figure 1).

A geoboard was used to create the game setting shown in Figure 3. This game was presented to the older children who participated. The eight possible directions ($\uparrow$ $\downarrow$ $\rightarrow$ $\leftarrow$ $\nearrow$ $\nwarrow$ $\searrow$ $\swarrow$) that can be taken on a geoboard are drawn on small pieces of cardboard (i.e., $\uparrow$). Six cards for each direction are prepared. Each of two players is assigned a different coloured bead. For the game, these beads are placed in the centre of the board. The pieces of cardboard showing the different directions are turned face down. The players take turns lifting one card. After a player turns a

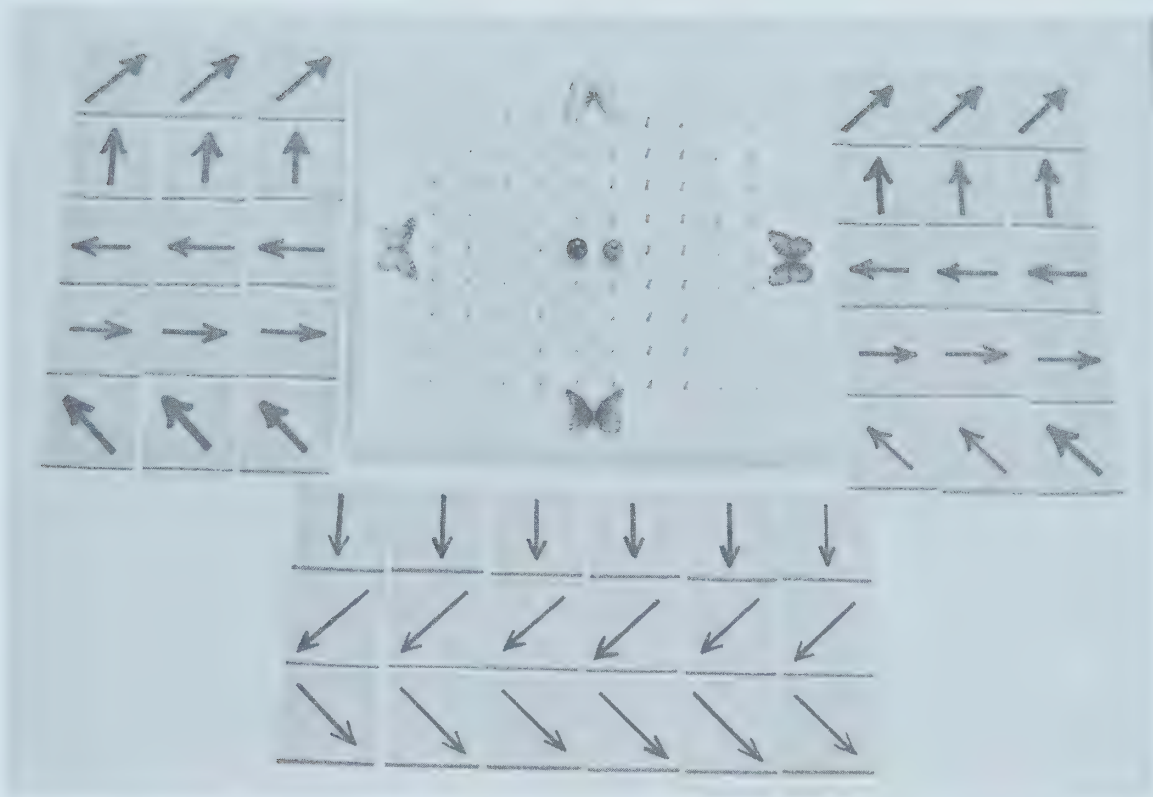


Figure 3

card, his bead is moved onto the next nail, as indicated by the directional arrow on the card. The first player to get to a nail near a butterfly is the winner.

To give young children an opportunity to make a decision or to choose between alternatives, the following variation was introduced. For each turn, the players are permitted to turn over two (or three) cards. A choice is then made in terms of the direction a player thinks is most advantageous for racing to a designated butterfly. Another simple variation consists of reducing the possible directions to $\uparrow$ $\downarrow$ $\rightarrow$ and

A simple tic-tac-toe setting is illustrated in Figure 4. A colour is chosen and then turns are taken in placing the coloured corks into the holes on the board. The first player to get four corks in a row, vertically, horizontally, or diagonally, is the winner. The children seemed to enjoy this game. The majority were able to think only in terms of offensive moves, though several of the older children showed awareness of both offensive and defensive strategies. One six-year-old offered the following "valuable" advice to her opponent who had just lost the second game in a row, "You got to be really smart. You got to think that I might win if I'm going this way — this way — then there — and if I only got one more to go, you got to block me." (This game setting can easily be duplicated with coloured beads and a geoboard.)

One game which is interesting in terms of observing a variety of reactions, comments or facial expressions is "Tic-tac-toe — Three in a row!" For this game, the adult takes the first turn in placing a cork somewhere near the middle of the gameboard. Then turns are taken and the winner is the player who is first to get three corks in a row, vertically, horizontally, or diagonally. Some young children will play the game twice and realize right away what is going on. Others play it four or more times before the expression on their faces shows that they have made a

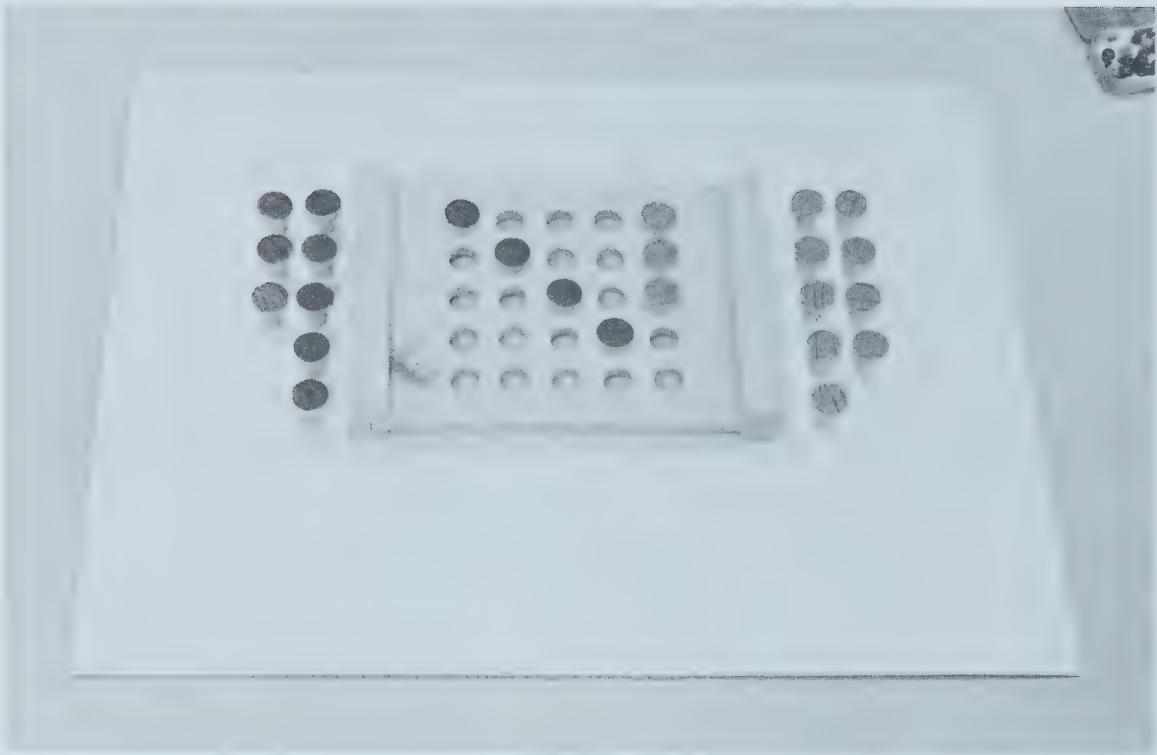


Figure 4

deduction about the game. The comment, “I don’t like this game,” is common and the majority of children realize that “I can win if you let me start.”

For the “Farm-Animal-Race” (Figure 5), players take turns throwing a number cube. Animals are advanced along a path in an attempt to be the first across the board. Along the way, the animals encounter red and/or yellow spots on the gameboard which require moving ahead or back depending on the direction indicated by an arrow. After the children are familiar with the setting, the

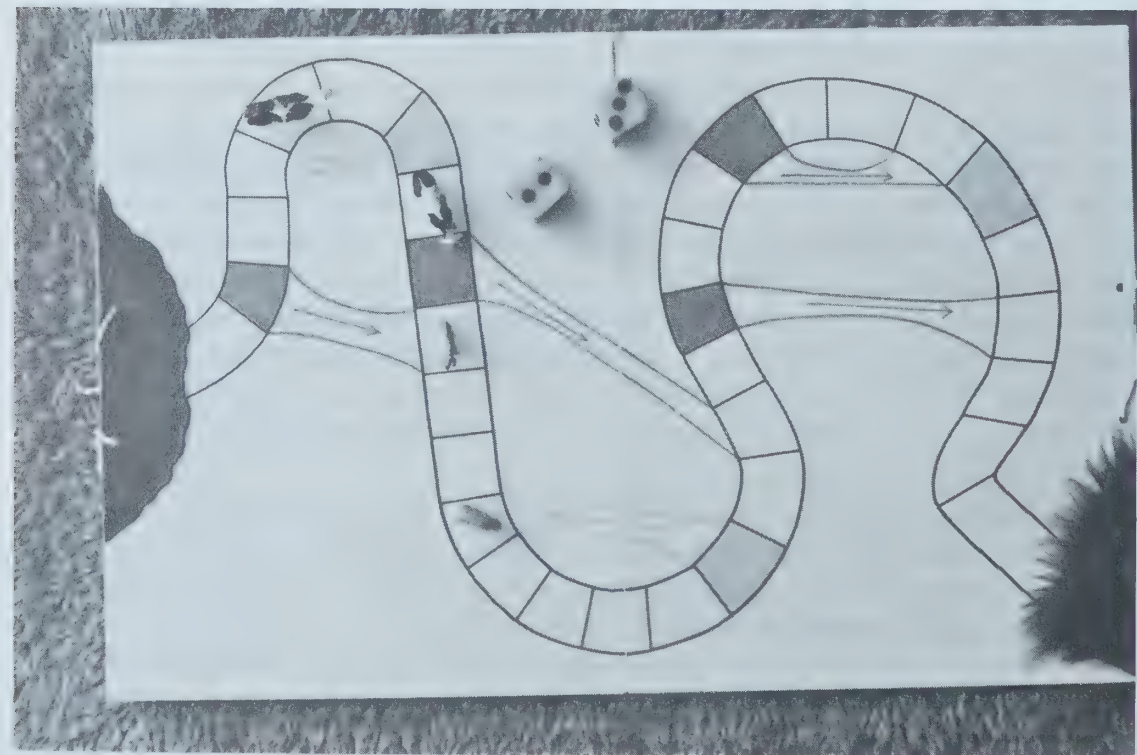


Figure 5

following variation is introduced. Each player is assigned two animals and both are to be advanced across the board, simultaneously or separately. The reason for this variation was an attempt to find out whether or not young children would or could develop the strategy of dividing up the steps to be advanced between the two animals in order to avoid sliding back and/or in order to take greater advantage of the spots that enabled them to move ahead. For the younger children, there were too many variables in this setting and they advanced one marker at a time. One child explained, "I can't manage two at a time." A few of the six-year-old children soon discovered the intended strategy. One child evaluated the game by stating his reason for enjoying the game, "Because you get to slide — slide — slide — all over the place!"

At times the gameboards and materials described above were presented without explanation of rules and different children were asked to think up possible uses for these. Inventing games and creating rules were enjoyable experiences for the children. Rules to accommodate all kinds of situations were devised and reasons for these rules willingly verbalized in what often amounted to very detailed descriptions. At times, quite a few rules were made up and it was amazing to observe that the children who had invented and described these rules remembered them as the games were played. Frequently, rules were revised or added to while a game was in progress. A revision usually occurred when children found themselves in a disadvantageous position on the gameboard. Although the reason for a revision could be observed, it was seldom verbalized by a child. In general the improvisations included the predictable setting where children attempted to transfer rules and moves from a familiar game to the gameboard on hand. However, as is the case with young children, there is always the unpredictable. The following examples illustrate different types of improvisations.

Two boys used the geoboard-butterfly setting (Figure 3) for a game that involved racing around the outside nails on the board to see who could be first to visit all four butterflies. A number cube was used to determine how many nails a bead was to be advanced.

The suggestions from the children for the tic-tac-toe materials (Figure 4) often involved "mad-scramble" games. For one such setting, two players had to put their corks into the holes as quickly as they could. Since both players were doing this at the same time, the winner was the one who got rid of the corks first.

One of the more unusual suggestions was made for the "Farm Animal Race" setting (Figure 5). One five-year-old thought the gameboard could be attached to the body with string and be worn as an advertising sign. According to the child, the sign would be an advertisement for game stores and it would "tell you what's in the shops."

Another part of the projects consisted of presenting young children with unfamiliar gameboards. (For examples, see Figures 6, 7, 8 and 9.) Number cubes, coloured chips, plastic animals and felt pens were also made available. The children were asked to make up their own games. One such gameboard (Figure 6) consists of a simple path. Happy and sad faces ("mad," according to most young children) are randomly placed on some of the subdivisions of the path. A similar but simpler setting (Figure 7) consists of a path without subdivisions. The gameboards shown in the pictures were laminated. The children were invited to use the water soluble felt pens to record any ideas for modifications on the boards.

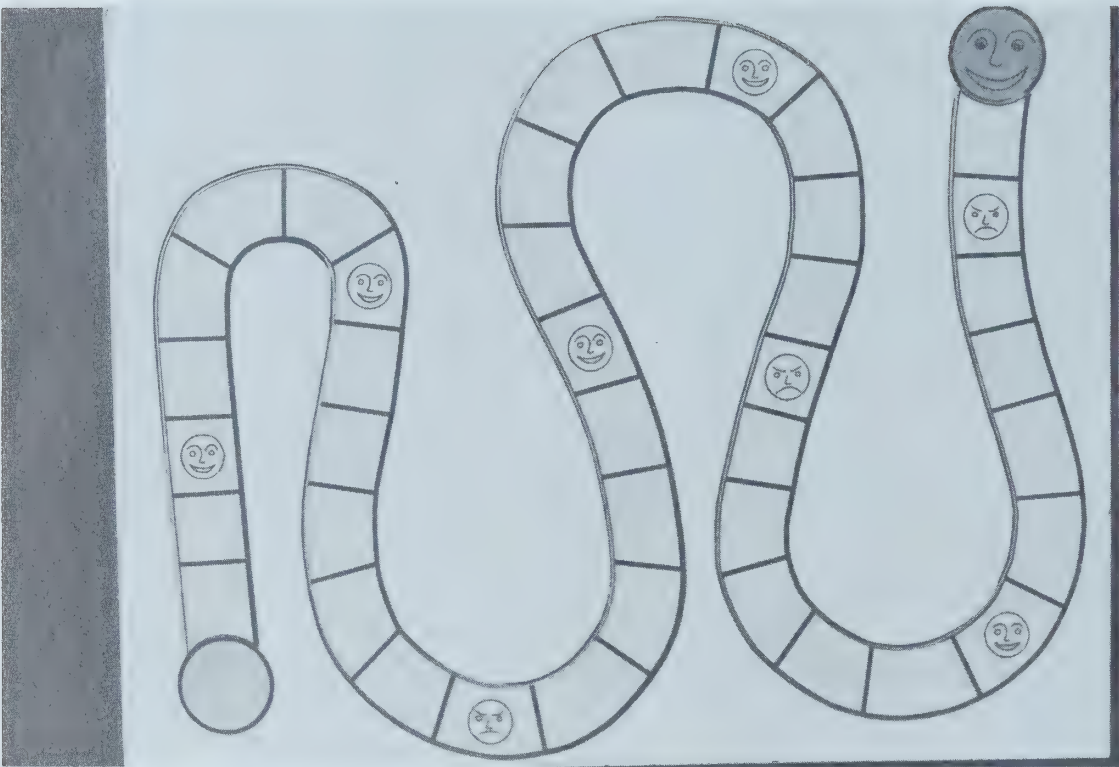


Figure 6

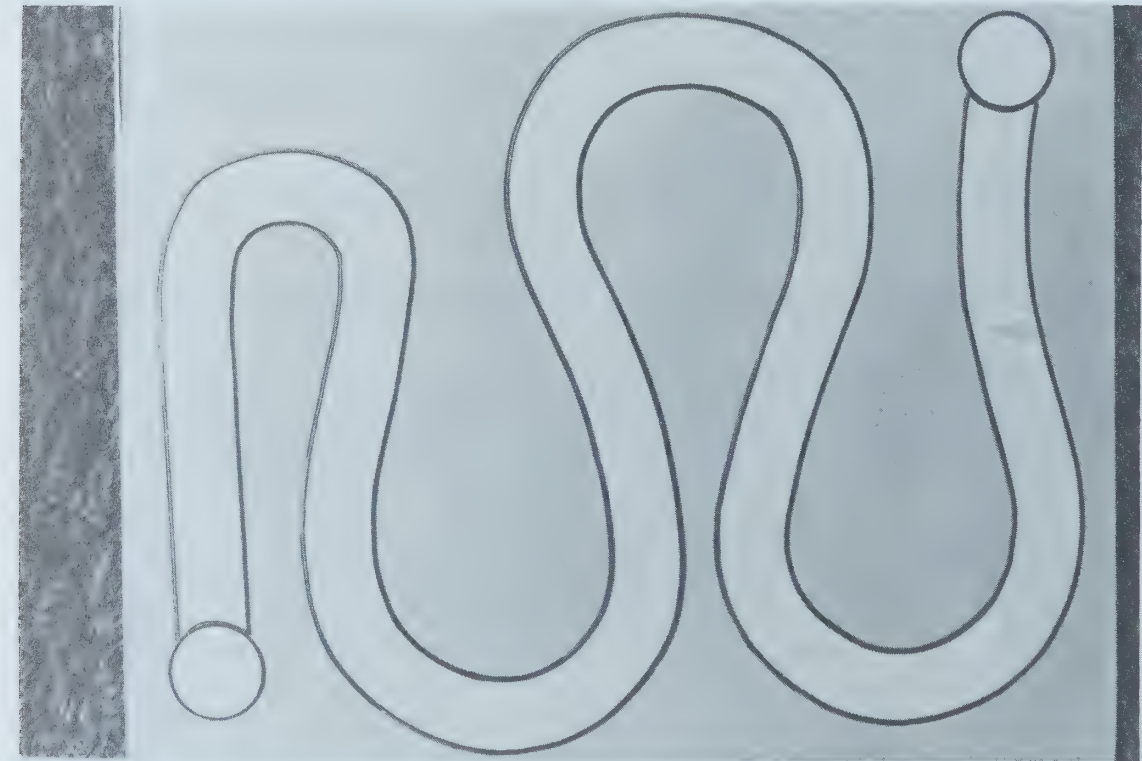


Figure 7

The children's reactions to these gameboards were diverse and very innovative, indeed. The majority of children were not disturbed by a path without subdivisions. Some of these children rolled a number cube to determine the number of steps to be taken and then took what they defined to be "middle-size" steps. A few children drew in subdivisions with the felt pens. Several children placed colored chips along the blank path to designate the steps that were to be

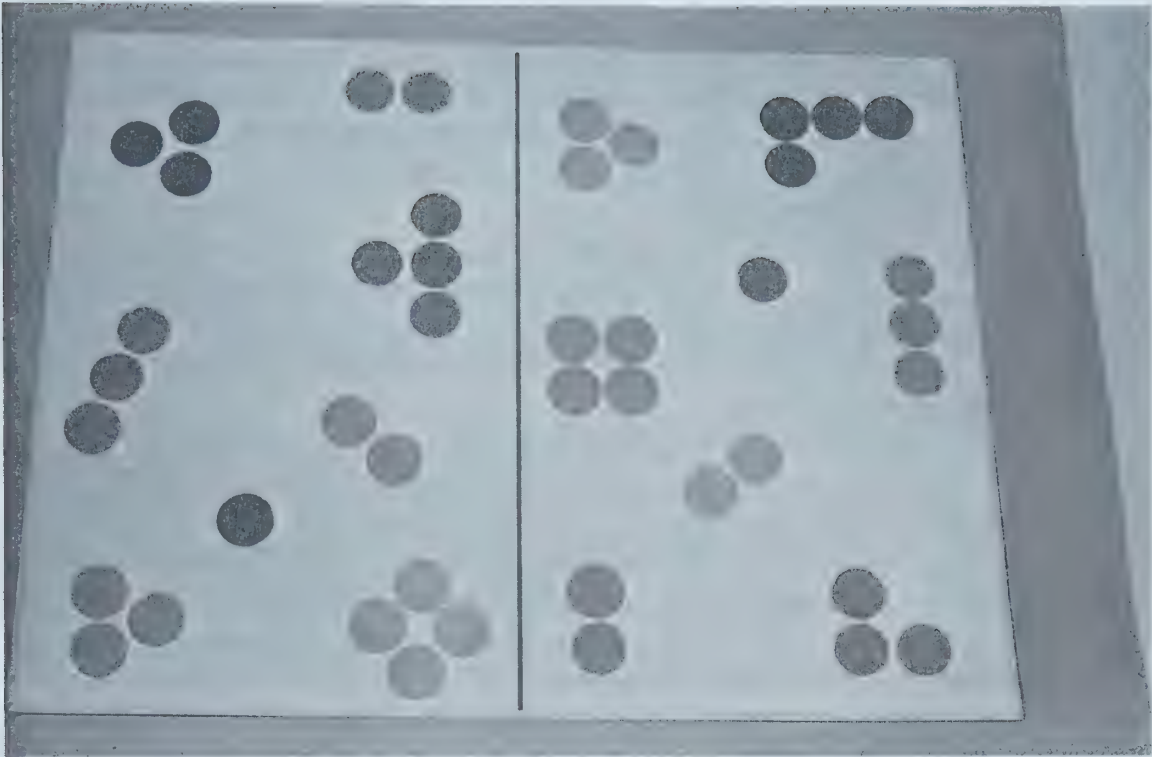


Figure 8



Figure 9

taken during a game. One girl devised an ingenious way to determine the number of steps to be taken without the use of a number cube. She placed six coloured plastic chips in her hand, raised her hand above the board and released some of the chips. The rule that not all of the chips are to be dropped was added to the procedure. The number of dropped chips indicated the number of steps to be taken with the marker on the gameboard.

One of the most satisfying observations included the fact that all of the children who participated in this part of the project were very eager to make up their own games. The children especially enjoyed being able to teach the adult in charge how to play their game. Even shy and quiet children talked enthusiastically about their own games and rules.

In part, the observed willingness and enthusiasm led to the following project activity. A survey of children was conducted to identify games that are frequently found in homes. The resulting list of games included Chess, Checkers, Backgammon and Master Mind. These games were obtained and presented to the young children in the following settings. If children had heard of the game and they thought they knew how to play it, they were asked to teach the game or explain the rules to the adult. If, on the other hand, the children did not know how to play the game, they were asked to suggest possible uses for the gameboards and to make up their own rules for these settings.

The observations made in this setting showed that not only did the children enjoy this setting, many of them felt proud about being able to touch and play with "adult" games. The comments the children made about these games showed that they are very observant. Many children knew quite a bit about certain game procedures and rules. However, more often than not, the rules were applied incorrectly and/or important rules were forgotten or left out when young children who thought they know how to play the game explained it to an adult. As was the case for the previous setting, the children who participated were very enthusiastic about making up their own rules for a given gameboard. More than once a child was encountered who did get carried away by his/her enthusiasm and ability to invent rules. Rules which only the creator could understand and remember were made up. However, most of these complicated games had one common element — the child who had made up the rules could not lose the game.

Any project that involves the observation of young children in action is a rewarding experience. Information can be gathered about how young children think and there are always incidents encountered which illustrate that young children differ in their thinking from adults. Learning can be observed. It happened more than once, for example, that younger children modified their game-playing responses as a result of observing older children in action. Observations can be made which reinforce what is known about young children and their behaviour. The majority of four-year-old children preferred to examine the game materials in a free or guided play setting. If possible, these children used the settings to create something from their experience. Their conversations centered around familiar objects. Five- and six-year-old children were more likely to show an interest in structured play or game settings. Most of the children in these age groups were able to justify their game moves. Many of them modified their use of strategy as a result of having observed the opponent's moves and strategy. Although their explanations for certain moves on a gameboard were often based on arbitrary terms, such as personal preference, they were beginning to understand

cause and effect relationships in game play. These older children also showed more of an interest in modifying original game rules and in creating new ones. All of the children who participated seemed to thrive on being given the opportunity to express their ideas and thoughts about games.

Note

1. Provincial Youth Programmes: May to August, 1977 and 1978:

— “Young Children and Game Playing Behavior: Strategy” ($N = 59$)

— “Young Children’s Thinking: Game and Rule Interpretations” ($N = 27$).

The children who participated came from several Day Care Centres and Kindergartens in Victoria, B.C.

PERSPECTIVES

History of Childhood as History of Education: A Review of Approaches and Sources

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Childhood and family history are developing specialties that promise to integrate many of the latest innovations in contemporary scholarship (Kren, 1977). The history of family life is associated with both the new quantitative history with its use of computers, sophisticated statistical programs, census and other demographic data, and family reconstitution techniques and the new social history's use of social scientific theories and concepts to organize historical data into explanatory propositions. Although some scholars have gone to humanistic, psychological, and particularly psychoanalytic literature for insight into and explanations of human actions, most scientifically minded historians have turned to the behavioural sciences for aid in formulating scientifically testable hypotheses.¹

While historians of family life are attracted to quantitative and social scientific historical inquiry, historians of childhood have sought their conceptual framework in psychoanalysis or critical history. Childhood historians, in moving away from public events and large scale social data have been forced to consider anew some fundamental questions of the historical enterprise, particularly the relationship between private experience and public events and the use of concepts in the selection and organization of evidence.²

Since family life and childhood are associated biologically and socially, many studies span both specialties; however, even these tend to display either a social or a psychological emphasis depending on the primary focus of attention.

As in the case of the "new" history of education, historians have been attracted by the intersection of significant elements of human experience which offer opportunities for understanding institutions, processes, and actions. In this case, however, historians of education share in the pleasant prospect that a new historical specialty will not only enrich their work but that without a proper

consideration of education the history of family and childhood will be seriously truncated.

Educational historians have begun to include materials from the new areas in their course, and in a number of universities, courses clearly identified as family and childhood history have been developed as history of education offerings. With so much activity in North America and Europe, such courses will soon become basic elements in any full-fledged history of education program in Canadian universities. Also the centrality of the areas to so many aspects of human experience suggests that a variety of academic units, e.g., departments of history and literature and faculties of social welfare, will soon be offering their versions of history of childhood and family life.

It seems axiomatic that subjects such as "childhood" and "family" would have a *prima facie* case for inclusion in the professional education of teachers. Whether their focus is social or psychological, such courses provide intending-teachers with a new way of understanding the development of educational structures, processes, and theories. Either as a form of grass roots history of education or as a conceptually organized interpretation of the interactions of private experiences and public events, these courses provide another perspective that promises to link education, and particularly schooling, to deeply felt common human experiences.

Such emphases also promise to humanize the formalistic character of both the older educational historian's preoccupation with the internal logic of institutional pedagogy and the new social historian's obsession with quantification and social scientific concepts. While students are attracted to courses that treat personally significant social categories, the stress on concrete individual experience and the necessity for reconstructing past sensitivities and sensibilities promise opportunities for realizing a major goal of historical inquiry, namely that each era and society must be understood in its own terms. To recognize and to act on the principle that our values and categories are not universally held or natural is a significant result of historical study.

What follows is an explanation of the problems and opportunities facing the educational historian who attempts to incorporate history of childhood and family life into the history of education offerings in faculties of education. For brevity, the term "history of childhood" will include elements of "history of family life" that are relevant to the history of education.

I

Although it is only the recent interest in childhood and family life that has produced the necessary monographs and articles for university courses, there exists a scholarly literature in closely related areas, e.g., religious and ethnic studies, which have provided a partial basis for the new work and have, in turn, been revitalized by the new specialties. The sudden surge in activity is connected to certain methodological problems in historical scholarship and to the development of strategies to outflank these obstacles.

A major problem is the very nature of history, namely that it is preeminently the study of documents and, in particular, documents related to large historical institutions. Since it is just those institutions that produce and conserve documents, historians have been driven to concentrate on them. Perhaps "driven" is too strong a word because historians have generally preferred public events to

private experiences not only because of practical difficulties but because they have deemed public events to be more important, to be the real point of history, while private experiences are seen as the subject matter of autobiography and biography, literature, psychology, and aesthetics.

Even those historians concerned with plotting the *public* terrain of childhood are faced with problems of suitable evidence. Documents of public events are usually marked by continuity and at least minimal relatedness. Documents of childhood and family life are plagued by discontinuity and uniqueness. Children and families, except for the selfconscious and the powerful are counted among the mute of history, that is, those faceless throngs who provided the energy if not the wittiness of society.

There is another inherent characteristic of history that must be noted. Although many historians talk of the "creative reconstruction of past events," the historical enterprise is more properly and appropriately concerned with the construction of historical knowledge based on a disciplined examination of documents (Meiland, 1965). This observation is based on two considerations. First, it cannot be that "reconstruction of past events" requires the restoration of a particular event in its fullness. Such a restoration could no more be grasped by the historian than by the intelligent contemporary viewer unless, of course, one postulates an historical mind that is divine or at least angelic. Secondly, however, there remains a more fundamental objection to the reconstructionist position. Historians are concerned with providing interpretations of events that link discrete facts into a significant and meaningful narration. A crucial part of the historical enterprise is to determine which facts of the past are historical facts. Decisions in such matters do not arise out of the phenomena but rather are based on assumptions brought by the historian to his work (Leff, 1971).

Two major breakthroughs have radically changed the possibility of history of childhood. One is the development of demographic techniques and statistical methods which allow for the virtual reconstruction of past communities and for the establishment of empirically verified generalizations on such matters as fertility, mortality rates, family and household size, and the distribution of inheritances.³ This research has called into question many of our beliefs about early modern family life. These beliefs must now be seen as part of the Edwardian mythology surrounding Victorian England and by extension the rest of Europe and North America.

The second breakthrough is perhaps best illustrated by Philippe Ariès' *Centuries of Childhood*. Although historians have been aware that documents include more than the written word and although art historians and classicists have made brilliant use of iconography, architecture, literature and language, to understand classical antiquity and the function of central concepts in Western life, historians studying private but publicly significant experiences have been slow to make use of such evidence and techniques. Ariès demonstrated the effectiveness of the procedures in making manifest changing perceptions of children and the growing sentimentality of a child-centred family and family-centred society. Although Ariès' interpretation has been vigorously challenged, the enduring result of his work was to demonstrate how indirect evidence — given the appropriate conceptual framework — can add a new dimension to historical knowledge by providing the mute of history with the means of speaking to us.⁴

Ariès' approach offers a means of circumventing the traditional problems of the

fragmentary nature of memoirs, autobiographies, and diaries, the unrepresentativeness of materials from the self-conscious portions of élites, and the fact that nearly all accounts of childhood are filtered in one way or another through adult eyes.

With all that, we are still left with the problem of understanding the nature of the relationship between childrearing literature and normal practices of the times. The popularity of such manuals as Dr. Spock's *Baby and Child Care* raises a variety of questions. First, although it is sometimes possible to determine the sales and even circulation rates of these manuals, it is unclear whether they are charting new directions in child care or primarily restating conventional wisdom. Secondly, the existence of child care practices conforming to the advice of such manuals do not imply unambiguous connections — even in the cases of readers of the manuals — for we may interpret such correspondence as the reflection of traditional patterns given a new guise by writers of child care literature. Thirdly, practices that differ from traditional ones may have arisen from conditions quite unrelated to the manuals. Finally, popular child care manuals require careful examination in light of the consideration that there is more to them than recommendations for child care. That is, their popularity needs to be understood in connection with a whole series of social interests, needs, and relationships.

It is in the social analysis of childrearing and etiquette literature that Ariès has again demonstrated the possibility of getting inside the mentality of various social strata over a long historical period by determining the principle categories that have shaped men's perception of the world.⁵ Ariès has reemphasized the significance of concepts in framing not only our social world but also our historical interpretations and the centrality of the construction of historical knowledge in the historical enterprise.

II

A remarkable trait of history of childhood is the lack of dogmatism generally and the diversity of approaches in course organization and research. This diversity is an expression of two fundamental historical principles. First, since history is the interpretation of documents, the wide range of documents has created a corresponding array of approaches and interpretations. Secondly, historians have frequently sought for the representative case, not in the sense of the average but rather as the unique and even eccentric embodiment of certain social characteristics. Thus, focusing on the exceptional enables the historian to put in bold-relief the peculiarities of a given historical age.

With these principles in mind, we can more fully appreciate the possible and actual methods of dealing with the problems of childhood history. One approach that connects history of childhood to the traditional study of pedagogues and their theories calls for an examination of the literature in the light of the concept of childhood. Unlike the older practice of analyzing educational theories in terms of standard pedagogical interests, the use of significant social concepts provides a link between the theorists and the ideologies of their times. It also liberates us from the ahistorical practice of reading our cultural concerns and understandings into the past. Although presentism is probably too pervasive to be totally excluded from our work, the history of childhood should alert us to the dangers of assuming the existence of familiar institutions and perceptions. In this instance, we are able to strip away the sentimentality that surrounds discussions of children and family life

and to avoid the mistake of using an idealized “modern” image of the family and family life by which to judge all historical cases.

An examination of the pedagogues allows us to estimate the extent to which such central modern concepts as childhood, family, and adolescence were significant elements in the thinking of a particular historical era. There is also considerable opportunity for re-analyzing pedagogical concerns in terms of these social categories and thereby re-connecting what often appears to be abstract and lifeless to institutional and intellectual considerations, i.e., the very things of which human experience is composed.⁶

A second major avenue into childhood history is through literary sources — an approach based on two assumptions. First, cultural historians are interested in the “representative” man or woman of a particular time and place. Although few would argue that fictional and poetic sources accurately depict historical situations, they do provide us with two kinds of understanding: (1) consciously or not, literary writers offer a way of looking at their world from within, i.e., the perspective of those who are a part of that world; and (2) since literature can only reflect, examine, or criticize a part of that world, then the authors must concentrate their consciousness on selected portions of their society. In these ways, writers reflect society and human nature through a literary prism to separate out and thereby to allow us to see uniquely, if distortedly, the pieces of a living world. Literature gives us a means of seeing not the commonplace but those characteristics of a society’s life that give it a style and tone, i.e., that are representative of it.

Secondly, literary materials are frequently produced by “representatives” of not only their own time but of the future, i.e., those who anticipate attitudes and sensitivities that are only an embryonic form in society. Although not all sensitivities come to define or dominate the thought and practice of the future, they do show us how certain forecasts are born, die, or come into organic relationship with enduring institutional and intellectual patterns.

Besides the original sources for such inquiry, there are major studies that illustrate significant developments in literary thought about children, childhood, and sensibility. In particular, studies of literature about and for children document not only patterns of social perceptions and expectations but also the ways in which literary and intellectual perspectives work their way into ordinary language and actions.⁷

A third approach to childhood history draws heavily upon the theories and concepts of psychology and particularly psychoanalysis. There is a distinction between the use of psychological literature as with literary materials in order to understand a given time and place and the use of psychological theories and concepts as the means of organizing and interpreting historical phenomena. In the first instance, psychology is problematic, that is, another product of human imagination; while in the second, it provides directive assumptions that guide the selection of data and their interpretation.

The most common basis for a psycho-history of childhood is psychoanalysis. Frequently the theoretical framework comes not directly from Freud but rather as modified by Erik H. Erikson, who has postulated a theory of psycho-social development marked by eight stages and specific crises. Erikson has also argued for an essentially benign relationship between the human organism and its social environment. The clarity of the Eriksonian schema with its accommodation of

cultural and historical conditions has attracted the attention of historians of childhood.⁸

The use of a psychological framework brings with it certain difficulties for historians who are required to accept certain assumptions about human nature and society that might otherwise be considered objects of inquiry. Also, given the multitude of human experiences and the fact that psychologies are not created outside those experiences, historians are able to provide data that illustrate the “truth” of the psychologies. In the case of a truly universal science, e.g., psychoanalysis, that claims to explain all human experience, one cannot conceive of historical evidence that would count against it. Consequently, much of psycho-history is ultimately the use of historical data to illustrate psychological theories. The principle attraction of the psycho-historical approach is its promise to give significance to scattered and idiosyncratic recorded experiences; however, if psychologies are to open new avenues of historical insight and inquiry, they must be used to suggest new points of historical research and analysis and not as monuments to which historical gingerbread is added for aesthetic reasons.

A recent example of the application of psychoanalysis in a universal theory of historical development is the work of Lloyd deMause and his associates in the Association for Psychohistory. Through the *Journal of Psychohistory* (formerly the *History of Childhood Quarterly*), sponsored publications, and conferences, the deMauseans have promoted a psychogenic theory of childhood that is also a psychogenic theory of history. The psychogenic theory has the twin advantages of a systematic psychoanalytic explanation for changing patterns of child care and institutional development and a stress on human relationships (and especially family ones) that so dominates the mind and popular social science of North America. The familiar themes of battered and abused children and wives, the lack of empathy, and the widespread use of guilt and psychological manipulation are some of the links between psychogenic theory and the educated mind of the West. As an example of Whig history with its emphasis on the victory of modern attitudes and practices over the primitive, psychogenic theory is concerned with discerning the roots of the present in the past. Consequently, psychogenic theory postulates a social equivalent of biological evolution that is a mixture of inevitability and moral progress.⁹

A fourth approach to childhood history is found in the studies of the institutionalization of children, adolescents, and deviants. In large part, these studies are a response to major problems in contemporary society. Confronted by contradictions in social policy and practice, historians have sought their sources in the movements for child-saving in the nineteenth and early twentieth centuries. These scholars have demonstrated a massive transformation of western society in terms of the creation of institutions that came to control more and more of the population and the intellectual and social conditions that made such institutionalization reasonable and desirable. Although they have provided us with exciting and imaginative examinations of these changes, these historians have not been able to transcend the contradictions that are part of the contemporary thinking about related social issues. Also, even if the massive transformation of the past two centuries is conceded, we still require an organizing principle that will conceptually link childhood before the transformation with the contemporary status of children and adolescents.¹⁰

A final approach to childhood history involves the use of “case studies” in

depicting the coming-of-age in a variety of urban and rural surroundings. Emphasizing the shock of recognition and the possibility of a recoverable past, the literature has moved in three streams. First, since the early 1950s there has been a strong interest in historical urban and regional studies. Some of these have incorporated the full array of quantitative historical methodologies, while others have relied on traditional historical techniques for recreating a past milieu. A second avenue to past communities is the considerable body of older sociological studies dating from the 1920s. Although most of the work is American and British, there are sufficient Canadian and European studies to allow for the cross-cultural comparisons. A third variety of case studies is the autobiographical and journalistic recreations of the recent past.¹¹

There are difficulties with all three approaches. First, the use of such studies can easily degenerate into a rag bag of odds and ends strung together by time. Second, there are again the problems of representativeness, fragmentation, distortion by subsequent experience, and the necessity of connecting private experience and public events. Finally, the last two forms of case studies are usually static slices of life without dynamics to account for changes over time.

III

All approaches to childhood history have been faced with the same historical and pedagogical question, namely, How can disparate data be organized into a meaningful and significant interpretation?

An increasingly popular integrating principle has been psychological models of human development and especially those postulated by Erik H. Erikson and Lloyd DeMause. As mentioned earlier, the rigorous application of psychological models to historical data introduces an element of determinism into historical interpretation that most historians find repugnant and raises the possibility that the activity underway is essentially psychology rather than history.

Some historians are attempting to establish significant patterns of human life, e.g., sentiment, morality, and mass behaviour, by a close examination of a wide range of historical studies (Shorter, 1975). Even with the determination of these patterns, one is still left with the necessity of organizing the empirical generalizations into an historical interpretation that has coherence, clarity, and point. What these scholars have done is to produce historical evidence that is more abstract and generalized than most historical facts. What they have not done is to provide an interpretation that uses the generalizations.

A third — and pedagogically more useful — approach is best reflected in the work of Philippe Ariès who has made extensive and subtle use of “concepts” in ordering an impressive variety of historical evidence. In a sense, the “conceptual framework” approach borrows more from the recent revolution in philosophy than from social science in that the thrust is to establish the essential characteristics of major social categories, e.g., childhood, family, and adolescence, and then to explore the historical development of the concepts into their contemporary form. By focusing on central concepts in history of childhood, the conceptual framework approach provides an integrative principle for case studies and evidence drawn from pedagogical thought and literary and intellectual sources.¹²

This approach rests on several assumptions. First, that the end of the historical enterprise is not the reconstruction of the past but the construction of historical

knowledge. Documents, which are the evidential base for historical knowledge, include not only written records but also the monuments of the past, e.g., architecture and iconography. Secondly, that historians are concerned with historical interpretation rather than causal explanations. As a result historians are interested in constructing historical interpretations that are dependent on historical documents for evidence but that are essentially creative activities controlled by the dominant views of human nature and society and by the canons of logic. Thus, we are able to account for widely differing interpretations of historical phenomena — even where similar evidence is used — by understanding the assumptions underlying each interpretation.

Thirdly, underlying this view of the historical enterprise is the more basic assumption that the human mind is “creative and self-determining, playing a constructive role in life and experience rather than passively responding in mechanical fashion, to the promptings of external or internal stimuli” (Gardiner, 1974) and that the way in which the mind plays such a “role” is by means of concepts and especially social categories that give order and point to experience. Thus, to grasp what is entailed in key concepts over time is to understand the point of institutions and human activities, that is, to understand what they are intended to do. It should be noted that the conceptual framework approach is based both on the centrality of concepts in human experience and in the construction of historical interpretations of that experience. In that sense, the approach and the theory are consistent.

Fourthly, that the criteria for an acceptable or adequate historical interpretation are that the interpretation “must accord with the evidence . . . must show the connection between the events it interprets or at least their significance in relation to their context . . . and . . . , should not presuppose unlikely, implausible or unacceptable assumptions” (Leff, 1971). The crucial element is the matter of assumptions for not only do different assumptions lead to different conclusions from the same data but assumptions often direct us to select different evidence. The conceptual framework approach requires us to be critically self-aware in understanding and explaining the process of historical inquiry *and* the process by which we construct our words.

Fifthly, that a good history course is essentially an extended historical interpretation. As a result, the central characteristic of the course must be a critical use of concepts, logic, and evidence in light of the nature and limitations of any historical interpretation. Finally, that a history of childhood course as an extended historical interpretation is conducive to the development of skills of historical analysis and synthesis. Such skills allow us to see our world differently in ways that we most likely would not have and to confront that world with all its risks.

IV

It is now necessary to outline briefly the organization of a history of childhood course using the conceptual framework approach. Given the importance of assumptions, the approach requires the examination of the dominant models of childhood in order to explicate the assumptions, logic, and evidence used. There are available three major interpretations that allow for the full use of conceptual analysis, that is, the psychogenic theory of Lloyd deMause, the psycho-social developmentalism of Erik H. Erikson, and the cultural relativism of Philippe Ariès. It is not possible here to offer any explication of the three models. Rather what

follows is a brief description of the use of the models in an undergraduate course in a faculty of education, a course which is organized so as to focus specifically on the relationship of childhood, family, and institutional education.

After some introduction to the nature of the historical enterprise, students are initiated into an examination of the three models by a combination of assigned readings and lectures that provide a systematic explication of each model in turn. After the deMausean and Eriksonian models have been introduced it is possible to exploit them pedagogically by comparing them in terms of evidence used and the interpretations given for similar data. This allows students to comprehend the importance of assumptions and to begin the first steps in historical analysis by examining the logical and practical consequences of different assumptions. Extracts from primary and secondary sources for class analysis can also be employed to demonstrate the process of determining assumptions, use of evidence, and argument.

We then move on to Ariès' *Centuries of Childhood* which requires detailed classroom analysis in order to realize its full potential. In particular, it is necessary to engage in an analysis of Ariès' concept of childhood by stripping away all but its essential meaning. With the analysis completed, the class can now read Ariès with increased understanding with respect to (1) the connection between childhood and family, (2) the relationship of schooling to childhood and family, and (3) the functions of religious, social, and intellectual movements in shaping institutions and processes serving children and youth. Slides of the iconographic evidences used by Ariès and critical articles examining various parts of his interpretation are used to demonstrate the varieties of historical evidence and their limitations as well as the ways in which different assumptions influence historical judgments.¹³ It is then possible to engage in some comparative analysis of the three models of childhood by examining the ways in which the same historical phenomena, e.g., swaddling and apprenticeship, are explained. Once again extracts of primary and secondary sources are a convenient means of conducting in class analysis of historical propositions.

In describing the conceptual framework approach, we have emphasized the triads of concepts, logic, and evidence in analyzing models of childhood and historical statements. We should not, however, lose sight of the final end of this initial work, namely, the construction of historical knowledge in the form of an interpretation. An interpretation is basically an act of synthesis — the organization of a logically coherent argument based on relevant evidence and reasonable assumptions. One of the assumptions underlying the course was that it was to be an interpretation that linked together childhood, family, and schooling. The examination of the works of deMause, Erikson, and Ariès provided the means to connect the three institutions prior to the establishment of compulsory schooling in the nineteenth and twentieth centuries.

The course is an interpretation of the relationship of childhood, family, and common schooling which argues that changes in childhood and family life since the Middle Ages have resulted in removing children and youth from the rigours of adult society. This removal increasingly limited the liberty of children and youth and asserted that their natural condition ought to be one of dependence, protection, segregation, and delayed responsibility. In order to bring about such a change in the status of children and youth, more than the transformation of the family from an economic to an affectionate institution was needed. What was

required was a universal institution that had as its major responsibility the rearing of children and youth in a protected and controlled environment. The obvious agency for such control was the school and the means for institutionalizing all children was the common school.

In order to complete our synthesis, we must consider the major interpretations of the use of common schooling. After an examination of the four major positions — Whig, social control, conflict, and anxiety¹⁴ — in which their principal characteristics were established, we then turn to the connection between the rescue motive developed in the analysis of the models of childhood and the interpretations of common schooling.

The course has now reached its conclusion with the final argument that the common school was the most ordered of rescues by providing a compulsory childhood for all children. By focusing on the essential criteria of the concept of childhood, we have been able to develop the links among three institutions — childhood, family, and school — that allow us to offer an historical interpretation of the rise of compulsory institutionalization of children and youth. In so doing, the course itself is a cohesive unit that subjects various historical interpretations to the rigours of critical analysis and introduces newcomers to historical methodology and to the major problems inherent in the discipline itself, e.g., matters of cause, explanation, evidence, and assumptions. Likewise this analysis proves to be the means for a compatible examination of the popular interpretations of the rise of the common school.¹⁵ Thus, the methods of analysis and synthesis have provided us with the means of linking together three significant institutions of modern society — childhood, the family, and the school.

Notes

1. Shorter (1975) has provided the best general introduction to the quantitative study of family life. The leading periodicals are the *Journal of Interdisciplinary History* and the *Journal of Family History*.
2. In addition to the seminal work of Ariès (1962), we now have major studies of children in Canada (Sutherland, 1976), England (Pinchbeck & Hewitt, 1971-1973), and the United States (Cable, 1975), as well as youth in England and Germany (Gillis, 1974) and America (Kett, 1977).
3. A general survey of historical demography is given by Hollingsworth (1969).
4. An excellent example of this scholarship is Jaeger (1943-1945).
5. The etiquette and courtesy literature has been critically examined in Barker (1967), Mason (1971), Ferguson (1960) and Esler (1966). A significant aspect of this literature and its nineteenth century equivalents (cf. Crandall, 1969) is that they served as a means of re-socializing young men moving from one social stratum to another as well as introducing knowledge of new social roles into schools and universities.
6. Although major educational theories and practitioners of the early modern Europe (1650-1850) anticipated many of the changes in sensibilities and practices in child care, there are no modern studies examining Comenius, De la Salle, Francke, Pestalozzi, Herbart, and Froebel from either the perspective of institutionalization or the growing concern for psychological control of children and adolescence.
7. The central work is by Coveney (1967); however, one should not neglect Walsh (1966) nor useful studies of children's literature by Avery (1965), and Kiefer (1948).
8. The Eriksonian study of greatest interest to the historian of childhood is *Childhood and Society*. For assistance in understanding Eriksonian theory and its implications, consult the study by Roazen (1976).
9. L. deMause has used the *Journal of Psychohistory* (formerly the *History of Childhood Quarterly*) to expound his view on psychohistory (1975a, 1977) and his psychogenic theory of childhood (1974, 1976). He has also edited an important collection of original historical studies (1975b).
10. Exemplary studies of institutionalization include Rothman (1971), Mennel (1973), Platt (1977), and Schlossman (1977).
11. The classic sociological community studies for the United States and Great Britain are conveniently surveyed by Stein (1964) and Frankenberg (1966). One might wish to supplement these with such community studies as Wylie (1964) on France and Burnet (1951) on Alberta.

Although in North America most attention has been on colonial New England (Demos, 1970), historians have studied such diverse communities as nineteenth century Hamilton, Ontario (Katz, 1976) and frontier Wisconsin (Curti, 1959).

The popular accounts range from descriptions of village (Blythe, 1970) and slum (Roberts, 1973) life to the reconstruction of childhood experiences (Wheelis, 1958).

12. Although there is considerable interest in categorization among some sociologists of knowledge, the analysis employed here is more closely related to analytic philosophy (Peters, 1966) than to sociology.
13. Besides *Centuries of Childhood*, Ariès has expounded his views on the mid-twentieth century family (1975). Also see Mousseau's (1975) interview of Ariès. Useful critiques of his interpretation are found in Forsyth (1976), Hanawalt (1977), and Hunt (1970).

Materials for analyzing and extending Ariès interpretation are found in Cleverley & Phillips (1976), and Wishy (1968).

14. Examples of the four interpretations abound in the literature. The most notorious North American example of educational Whiggery is Cubberley (1919). Pedagogically Katz (1975) is the best introduction to the assumptions and logic of the social control theory. Excellent examples of the conflict interpretation are provided by Simon (1960-1974) and Laqueur (1976). At present the anxiety model has been explicated at length only by Finkelstein (1975, 1976).
15. For a detailed explication of this interpretation, see Schnell (1979).

References

- Ariès, P. *Centuries of childhood: A social history of family life*. New York: Alfred A. Knopf, 1962.
- Ariès, P. La famille: A report from France. *Encounter*, 1975, 45, 7-12.
- Avery, G. *Nineteenth century children — Heroes and heroines in English children's stories, 1780-1900*. London: Hodder and Stoughton, 1965.
- Barker, E. *Traditions of civility: Eight essays*. Hamden, Conn.: Archon Books, 1967.
- Blythe, R. *Akenfield: Portrait of an English village*. New York: Dell, 1970.
- Burnet, J. *Next year country: A study of rural social organization in Alberta*. Toronto: University of Toronto Press, 1951.
- Cable, M. *The little darlings: A history of child rearing in America*. New York: Charles Scribner's Sons, 1975.
- Cleverly, J., & Phillips, D. C. *From Locke to Spock: Influential models of the child in modern western thought*. Carlton: Melbourne University Press, 1976.
- Coveney, P. *The image of childhood*. Harmondsworth: Penguin Books, 1967.
- Crandall, J. C. Patriotism and humanitarian reform in children's literature, 1825-1860. *American Quarterly*, 1969, 21, 3-22.
- Cubberley, E. P. *Public education in the United States*. Boston: Houghton Mifflin, 1919.
- Curti, M. *The making of an American community: A case study of democracy in a frontier county*. Stanford: Stanford University Press, 1959.
- deMause, L. The evolution of childhood. *History of Childhood Quarterly*, 1974, 1, 503-606.
- deMause, L. Independence of psychohistory. *History of Childhood Quarterly*, 1975, 3, 163-200.
- (a)
- deMause, L. (Ed.). *The history of childhood*. New York: Harper Torchbooks, 1975. (b)
- deMause, L. The formation of the American personality through psychospeciation. *Journal of Psychohistory*, 1976, 4, 1-30.
- deMause, L. The psychogenic theory of history. *Journal of Psychohistory*, 1977, 4, 253-267.
- Demos, J. *A little commonwealth: Family life in Plymouth Colony*. New York: Oxford University Press, 1970.
- Erikson, E. H. *Childhood and society* (2nd ed.). New York: W. W. Norton, 1963.
- Esler, A. *The aspiring mind of the Elizabethan younger generation*. Durham: Duke University Press, 1966.
- Ferguson, A. B. *Indian summer of English chivalry*. Durham: Duke University Press, 1960.
- Finkelstein, B. Pedagogy as intrusion: Teaching values in popular primary schools in nineteenth-century America. *History of Childhood Quarterly*, 1975, 2, 349-378.
- Finkelstein, B. Fear of childhood: Relationships between parents and teachers in popular primary schools in the nineteenth century. *History of Childhood Quarterly*, 1976, 3, 321-335.
- Forsyth, I. H. Children in early medieval art: Ninth through twelfth centuries. *Journal of Psychohistory*, 1976, 4, 31-70.

- Frankenberg, R. *Communities in Britain: Social life in town and country*. Harmondsworth: Penguin Books, 1966.
- Gardiner, P. (Ed.). *The philosophy of history*. London: Oxford University Press, 1974.
- Gillis, J. R. *Youth and history*. New York: Academic Press, 1974.
- Hanawalt, B. H. Childrearing among the lower classes of late medieval England. *Journal of Interdisciplinary History*, 1977, 8, 1-22.
- Hollingsworth, T. H. *Historical demography*. Ithaca: Cornell University Press, 1969.
- Hunt, D. *Parents and children in history*. New York: Basic Books, 1970.
- Jaeger, W. *Paideia: The ideals of Greek culture* (3 vols.). Oxford: Basil Blackwell, 1943-1945.
- Katz, M. B. *Class, bureaucracy, and schools* (rev. ed.). New York: Praeger, 1975.
- Katz, M. B. *The people of Hamilton, Canada West: Family and class in a mid-nineteenth-century city*. Cambridge: Harvard University Press, 1976.
- Kett, J. F. *Rites of passage: Adolescence in America, 1790 to the present*. New York: Basic Books, 1977.
- Kiefer, M. *American children through their books*. Philadelphia: University of Pennsylvania Press, 1948.
- Kren, G. M. Psychohistory in the university. *Journal of Psychohistory*, 1977, 4, 339-350.
- Laqueur, T. W. *Religion and respectability: Sunday schools and working class culture, 1780-1850*. New Haven: Yale University Press, 1976.
- Leff, G. *History and social theory*. Garden City: Anchor Books, 1971.
- Mason, J. E. *Gentlefolk in the making: Studies in the history of English courtesy literature and related topics from 1531 to 1774*. New York: Octagon Books, 1971.
- Meiland, J. W. *Scepticism and historical knowledge*. New York: Random House, 1965.
- Mousseau, J. The family, prison of love. *Psychology Today*, 1975, 53-58.
- Peters, R. S. *Education and ethics*. London: George Allen & Unwin, 1966.
- Pinchbeck, I. & Hewitt, M. *Children in English society* (2 vols.). Toronto: University of Toronto Press, 1971-1973.
- Platt, A. *The child savers: The invention of delinquency* (rev. ed.). Chicago: University of Chicago Press, 1977.
- Roazen, P. *Erik H. Erikson: The power and limits of a vision*. New York: Free Press, 1976.
- Roberts, R. *The classic slum: Salford life in the first quarter of the century*. Harmondsworth: Penguin Books, 1973.
- Rothman, D. J. *The discovery of the asylum: Social order and disorder in the new republic*. Boston: Little, Brown, 1971.
- Schlossman, S. L. *Love and the American delinquent: The theory and practice of "progressive" juvenile justice, 1825-1920*. Chicago: University of Chicago Press, 1977.
- Schnell, R. L. Childhood as ideology: A reinterpretation of the common school. *British Journal of Educational Studies*, 1979, 27, 7-28.
- Shorter, E. *The making of the modern family*. New York: Basic Books, 1975.
- Simon, B. *Studies in the history of education* (3 vols). London: Laurence and Wishart, 1960-1974.
- Stein, M. R. *The eclipse of community: An interpretation of American studies*. New York: Harper Torchbooks, 1964.
- Sutherland, N. *Children in English-Canadian society: Framing the nineteenth-century consensus*. Toronto: University of Toronto Press, 1976.
- Walsh, W. *The uses of imagination: Educational thought and the literary mind*. Harmondsworth: Penguin Books, 1966.
- Wheelis, A. *The quest for identity*. New York: W. W. Norton, 1958.
- Wishy, B. *The child and the republic*. Philadelphia: University of Pennsylvania Press, 1968.
- Wylie, L. *Village in the Vacluse* (rev. ed.). New York: Harper Colophon Books, 1964.
- Zuckerman, M. *Peaceable kingdoms: New England towns in the eighteenth century*. New York: Alfred A. Knopf, 1970.

BOOK REVIEWS

Rejoinder

Rejoinder to Professor L. K. Schubert's review of John H. Andreae, Thinking with the Teachable Machine. London, England: Academic Press Inc., 1977, 178 pp. The Alberta Journal of Educational Research, Vol. XXIV, No. 4, December, 1978, 291-293.

Authors must have a thick skin and critics will always occupy a privileged position when they slate the work of others on the basis of a casual understanding. In an artificial intelligence (AI) journal, L. K. Schubert's review of my book, "Thinking with the Teachable Machine" (1977, Academic Press) might have been seen as the powerful AI orthodoxy rejecting an heretic, but in the December issue of *this Journal*, his words may well have puzzled readers with educational interests.

The development of my learning system, PURR-PUSS, did not proceed from the orthodox assumption in AI that "learning is a second-order effect" (A. Newell and H. A. Simon: Human Problem Solving, page 7, Prentice-Hall, 1972), but from the opposite assumption that learning comes first and provides a substrate for intelligence. Those who can entertain this second assumption will appreciate the modest efforts that have resulted in PURR-PUSS and will be surprised to find no astounding claims in my book. They will find that Schubert's review is full of inaccuracies that miss the point. However, there is one criticism which is so strong and so wrong that I cannot allow it to go unanswered. Were he right, the system would be useless.

In making the following assertion, Schubert is denying the inherent mode of operation of PURR-PUSS: "This illustrates a fundamental weakness in Andreae's prediction scheme: its inability to *generalize* over sequences and their relationships, i.e., its inability to form concepts."

PURR-PUSS interacts with the real or simulated world via several channels of input and output, which allow "her" to sense a variety of modes of input (e.g., sight, sound, and touch) and to effect a variety of modes of output (e.g., to eyes, voice, and limbs). The better the robot body which can be provided, the more useful will be the input and output channels.

For each channel, a fixed number of the most recent events on the channel comprise the "context" for a fixed-length predictor. The collection of contexts, called the "multiple context," is PURR-PUSS's information about the current situation. Her decisions to act are derived by simple majority-evidence logic from the several predictions of the predictors. Since as few as two predictions need agree for an action to be selected, much of the time PURR-PUSS is deciding with only part of her multiple context. Her decision mechanism *generalizes* from the partial

situation, represented by a few of the contexts, to the current situation, represented by the whole multiple context. Once the action has been taken, it is associated in memory with the whole multiple context and, if that situation occurs again *in toto*, all the contexts will *discriminate* in favour of the same action.

Schubert does not seem to have understood this process, explained in detail in chapter 4, or he would not have attributed the limitations of a single predictor to the multiple context.

The approach to intelligence via learning is slower and less spectacular than the programming of cleverness. Learning systems have a very long way to go. My book was written to encourage others to take this approach with a teachable machine interacting in the real world. Orthodox AI may continue to accumulate expertise about “specific mechanisms for solving problems, proving theorems, understanding language, manipulating blocks, and so forth,” as Schubert recommends, but my intuition is that they will not construct an intelligent machine that way. In my view, learning will be as vital to a really intelligent machine as growing is to a flower. Artificial flowers have many advantages and may well compete with nature for colour, texture, and fragrance, but they remain dead. The products of orthodox AI are magnificent and in many ways superior to the human brain, but they lack learning, the double-helix of intelligence.

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A THEORY OF EDUCATION. By Joseph D. Novak. Ithaca, New York: Cornell University Press, 1977, 291 pp.

A theory of education is an elusive ideal. Part of the elusiveness is caused by the many meanings of the word “theory.” At one extreme theories, particularly in the natural sciences, are highly formalized and abstract sets of statements that help to explain and predict phenomena. The kinetic theory of gases and Bohr’s theory of the atom are examples of this type of theory. At a somewhat broader level we find general areas of research labelled theories as in physical or nuclear theory. Sometimes “theory” refers to general patterns of explanation which tell us what the main concerns in an area are but which do little by way of providing specific grounds for making predictions as in functional theory in sociology, or Piagetian theory or Gestalt theory in psychology. Still another sense of “theory” is that of a general abstract program which is claimed should be adopted, as in Marxist theory. Finally at the opposite extreme from specific scientific theory is the use of the term to identify hypotheses, or even intuitive hunches, about the world which are often unsupported as in the claim that a person has a theory of how government will react to declining school enrollments. The other part of the elusiveness of a theory of education is caused by the subject matter of education. Much of our knowledge about education is empirical or factual. Research into questions such as whether homogeneous grouping of students increases achievement levels or whether higher order questioning by teachers improves understanding can be done by purely empirical techniques. But the empirical aspect of education does not exhaust the concept. Education is a value laden notion. One cannot engage in activities designed to educate others without making the judgment that what is to be learned is worthwhile. Questions about improving achievement levels or understanding are only meaningful *educational* research questions because it has been judged that

these are desirable goals. So a theory of education must do justice to the dual aspect of its subject matter and must make clear in what sense it is a theory. It is little wonder, then, that the whole notion of a theory of education is one wrapped in controversy and which presents an elusive ideal to researchers.

It is into this treacherous area that Novak steps with confidence, insight and a wealth of experience. His plan is to present a philosophical position, a theory of learning, and a theory of curriculum which together comprise a theory of education. He presents some implications of this theory for the planning of instruction and reports empirical studies which confirm the theory. My general impression of the book is that the positions on which his theory are based are plausible, helpful, and probably right, but that they do not add up to a theory of education. That is, the ideal remains as elusive as ever.

Before commenting on the argument as a whole let me briefly recount the constituent parts of the theory. The philosophic theory is that of Stephen Toulmin in *Human Understanding*. In the one volume published of the three planned, Toulmin is concerned with the historical evolution of human knowledge and understanding, i.e., the growth of concepts. The motto of the book, taken from Kierkegaard, nicely expresses the theme of Toulmin's work: "Concepts, like individuals, have their histories and are just as incapable of withstanding the ravages of time as are individuals." This is not the place to summarize or evaluate Toulmin's masterful work. Suffice it to say that it puts concepts at the centre of attention and shows that concepts are not immutably fixed, but that they evolve over time just as biological species do.

The psychological theory of learning that is the heart of Novak's theory also centres on concepts. It is David Ausubel's theory of meaningful learning which emphasizes that learning in order to be meaningful must fit into a conceptual pattern. The psychological entities into which new information is assimilated are subsuming concepts in the cognitive structure. It is the existence of such subsumers that makes learning meaningful. For this reason, Ausubel stresses the use of advance organizers in instruction. Again this is not the place to go into the details of Ausubel's work, but it is important to note that Ausubel, like Toulmin, puts the growth of concepts at the centre of his scheme. For Toulmin the concern is with human knowledge and understanding in general. Ausubel deals with an individual's knowledge when he stresses the assimilation of new information within the knowledge structure of the person's cognitive structure.

The third main component is Mauritz Johnson's model of curriculum and instruction. Novak rightly utilizes Johnson's distinction between curriculum and instruction and benefits from the clarity that Johnson has injected into curriculum discussions. Novak also points out that traditional learning theories say little if anything to the planning of curriculum and instruction. He then goes on to do a very nice job of showing the congruence between Ausubel's learning theory and Johnson's model. Another element pointed out at this time is that the discussion and research into the structure of knowledge fit in with the theory. With Ausubel's concern for the individual's cognitive structure it is natural to search out the structure within bodies of knowledge.

So Novak has provided us with an integrated picture of education. It centres on Ausubel's theory of meaningful learning with support from Toulmin's discussion of the growth of concepts and with relation to Johnson's model of curriculum and instruction. Built into this is a great deal of insight on such topics as psychological issues in education, the planning of instruction, and the future of education. All this is supported by the report of the research done by Novak and his co-workers. But I do not think that it all adds up to a theory of education. Let me explain.

The first reason for not having a theory of education is the heavy emphasis on conceptual learning. Education includes at the very least not only conceptual learning, but the learning of skills, facts, theories, attitudes, habits, norms, tastes, and standards of thought, action and decision. So a theory of education must make provision for these. Novak does not limit his discussion to conceptual learning; he does make mention of both skill and affective development, but the main emphasis is on the learning of concepts. To the extent that other types of learning found in education are given short shrift, the proposed theory is weakened.

There is also a sense in which the reliance on conceptual learning creates vagueness. The notion "concept" has a very loose meaning and is used in a variety of ways. Novak defines "concept" as some regularity or relationship within a group of facts and designated by some sign or symbol. Such a definition does not seem to be of much help, for the terms "regularity or relationship" do not seem much clearer than does the term "concept." For example, there is a regularity of sorts in the placement of objects on my desk but I am at a loss to know what concept is exemplified by such a regularity of facts. Also, I have the concept of a unicorn although it does not describe a regularity or relationship within facts. As Toulmin says, "The term 'concept' is in danger [of] becoming an irredeemably vague catch-all."

The second problem that I see is that Novak's theory ignores completely the social aspect of education. Novak is concerned with learning theory, of how an individual learns. This is of course a crucial part of education. But education typically takes place in groups of at least two — a teacher and a pupil — and usually in much larger groups; education always takes place in a society. Novak does not mention these factors. In order to capture all of its manifestations, a theory of education must include a social psychology and a sociology.

My final reason for holding that Novak fails to provide a theory of education stems from the normative aspect of our concept of education. To say that someone is educated is not just to describe some fact about the person, it is also to make the judgment that what the person has learned is valuable or is regarded as valuable. Not everything that can be learned counts as education. And Novak gives us no criteria for distinguishing between learning in general and that learning which is educative. This point also becomes apparent in the discussion of curriculum. His starting point in curriculum is a set of unspecified criteria for selecting knowledge to be taught. But this is precisely the contentious issue in curriculum planning. What knowledge is of most worth? Why do we agree that it is acceptable to teach cooking but not bank robbing? These are value questions and with Novak's eye on a natural science model of theory, there is no room for values in his theory of education. But value questions lie inextricably at the heart of educational matters, and a theory of education must deal with these questions. So, because of Novak's preoccupation with the question of how individuals learn concepts, I feel his proposed theory is too narrow in its concerns to be called a theory of education.

Although I make this criticism I want to stress again that this is a most valuable book which succeeds on many other levels. Two most welcome points I would like to mention. We owe thanks to Novak for introducing Toulmin's work to educational writing. Toulmin's careful and profound analysis of knowledge is a most welcome antidote to the strident and superficial writings on knowledge that are sometimes found under the name of sociology of knowledge. Novak's criticisms of behaviourism are clear, to the point, and well taken. He shows that the behaviourist viewpoint is inadequate for supporting in any way a general theory of education. Although I have criticized Novak for not paying enough attention to the normative aspects of education, by being concerned with *meaningful* learning he

gets much further down that road than do the behaviourists who are concerned with learning.

The book is well and clearly written. Two aspects, though, caught my attention. There is a curious inconsistency in the use of person. He switches between the first and third person pronouns in a jarring way. Also there are lapses in tone that strike the reader. In the midst of a difficult exposition of Ausubel's learning theory there is the sudden claim that Ausubel's monotonous speaking style has not aroused enthusiasm for his ideas. One wonders why this is relevant. Speaking style, typically, has nothing to do with the validity of ideas, and if in educational psychology it is a relevant concern, perhaps we should not look to educational psychology as a basis for a theory of education. The book is printed very well with the virtual absence of typographical mistakes. But there is one which is such a delight that I must mention it. In a discussion of computer assisted instruction (CAI) we find the following claim: "Widespread use of CIA is not likely much before the next century." I suppose that for this at least we should be grateful.

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RESEARCH IN EDUCATION (3rd Ed.). By J. W. Best. Englewood Cliffs, N.J.: Prentice-Hall, 1977, 403 pp.

EDUCATIONAL RESEARCH IN CLASSROOMS AND SCHOOLS. By L. Cohen. London: Harper and Row, 1976, 426 pp.

These two volumes, presented as introductory texts in educational research, represent two quite divergent approaches to the topic. *Research in Education* represents the conventional or traditional (in North America, at least) treatment with the stated objective of showing the beginner how to carry out a research project and present it in correct thesis style. In contrast, as the title indicates, the objective of Cohen's book is to introduce the reader to the purposes and techniques of observing pupils and teachers in school and classroom settings. Best mentions his target as the graduate worker in education; Cohen's intended readership is wider, specifically "students reading for B.Ed. degrees and for Diplomas and Higher Degrees in Education."

The disparate content of these two volumes may perhaps best be seen by comparing the 10 chapters of Best with Cohen's 8 sections:

BEST	COHEN
1. The Meaning of Research	1. Observing Pupil Differences
2. Selecting a Problem and Writing a Research Proposal	2. Observing Teacher Differences
3. The Use of Reference Materials	3. Observing Pupils'Expectations of Teachers
4. The Experimental Method	4. Observing Teachers' Expectations of Pupils
5. Descriptive Studies	5. Observing Pupils' Contacts with Pupils
6. Tools of Research	6. Observing Teachers' Contacts with Pupils
7. Descriptive Data Analysis	7. Observing the Classroom and its Materials
8. Inferential Data Analysis	8. Observing the School as an Organization
9. Writing the Report	Plus 29 Statistical Appendices
10. Historical Research	

A major strength of *Educational Research in Classrooms and Schools* is its widespread sampling of the enormous variety of techniques, instruments, and research findings in its particular area of concern — the classroom and school situation. Each of the sections presents the basic principles, gives examples of the major tests, methods, and materials involved, and gives a summary of research studies in the area. Each section also contains a useful bibliography and suggestions for further research. A particularly valuable feature for a beginner is the reproduction of excerpts (and sometimes all) of the actual instruments used. This does not take the place of reading the original studies, but it does give a clearer picture of how the data were obtained.

Perhaps the most positive aspect of *Research in Education* is that, unlike Cohen's book, it is a comprehensive treatment of the topics which invariably crop up in an introductory graduate course in educational research. With the exception of the chapter on Writing the Report (on which more later) all topics are covered fully and clearly, with a particularly effective treatment of the use of reference and research sources.

A questionable aspect of the Cohen volume is the apparent selectivity of studies and instruments included. For example, Cohen's discussion of machiavellianism centres on two instruments: Guterman's "Machiavellian Scale" and the sinister-sounding "Kiddie Mach Scale" of Nachamie. Neither of these instruments is mentioned in *Tests in Print*. This absence does not signify that these instruments are lacking in reliability or validity, but examination of the kind of data available through *Tests in Print* can go far to reassure a researcher that he is using the right tool for the job.

Some aspects of the treatment of readability in *Educational Research in Classrooms and Schools* bear closer examination. While opinions may vary as to their relative merits, there is little argument that the three most prominent readability measures are the Dale-Chall, the Flesch, and the Gunning Fog Index. None of these is included in the readability section. The four measures which *are* included consist of: the Spache formula (based on Dale-Chall); the McLaughlin SMOG Index (based on Gunning); the Mugford Readability Chart; and the Fry Readability Graph.

There is some inconsistency in Cohen's treatment of Spache's Readability Formula. Initially the formula is described as being based on the Dale-Chall (1948) 769-Word List, which is included in the text. Later it is suggested that those interested in further study of the Spache technique should consult the Dale-Chall (1948) 3000-Word List. Which is correct? Dale-Chall's 769-Word List actually comes from their 1931 paper on readability — not their 1948 paper.

Cohen recommends the Mugford Chart over the Fry Graph for speed and ease of application. Since the Mugford requires five separate operations and the use of 3 separate charts, compared to 3 steps and one graph for the Fry technique, his rationale is less than convincing, particularly when he states that there is as yet little evidence of validity for the Mugford technique.

Any major deficiencies in *Research in Education* would appear to involve omission rather than commission. Best includes report writing in his volume, but the presentation is far from comprehensive. Although the chapter is entitled "Writing the Report," in fact the chapter is exclusively concerned with writing a *thesis*, which is admittedly a form of research report, but a very specialized one. A major objection to Best's approach to the thesis format is that it presents only *one* alternative, featuring the heavily-footnoted citation technique which is mercifully being discarded by many institutions in favour of the APA format. A researcher tackling a research thesis for the first time (or even the second) has surely a

difficult enough passage without having to wrestle with a list of 40 footnote abbreviations such as *op cit*, *ibid*, *passim*, etc. Best is of course entitled to his preference, but his *readers* should at least be made aware of the alternatives.

As stated above, there is not much overlap in content between these two volumes. Two areas which *are* covered in both books are statistics and experimental method. At first glance Cohen's 29 statistical appendices would appear much more comprehensive in scope than Best's two chapters on descriptive and inferential statistics. On closer examination the coverage is seen to be approximately equivalent. Any author of an introductory research text is faced with the problem of how much statistical content can be usefully included. Even the 100 or so pages of text devoted to statistics by these two authors can scarcely expect to meet the requirements of the topic, when it is considered that a basic statistical treatment such as Ferguson's requires a 500-page volume.

In their treatment of experimental design, both Cohen and Best acknowledge their debt to Campbell and Stanley (who else?), but their adherence to the precepts of Campbell and Stanley differs considerably. Best uses the same notation and terminology as Campbell and Stanley and his treatment, while necessarily limited, is valid and straightforward.

The discussion of experimental design in *Educational Research in Classrooms and Schools* is less admirable. In his discussion of the Pre-Test, Post-Test, Control Group Design Cohen intimates that ideally the division into groups should be done at random, or the means and standard deviations of the groups may be compared. This is, of course, categorically wrong! Without the random assignment to groups, you have, not a true experiment, but a *quasi*-experiment, a term which does not even appear in Cohen's discussion.

Although library science treats the construction of a book index as a skilled technique calling for a high degree of expertise, this view appears to be foreign to book publishers. Many indices appear to have been compiled by the local office boy and these two volumes are no exception — both contain numerous errors in coverage and logic. Let us examine how the important research topic of reliability is handled by the index of each book. The Best index contains a single page entry, which turns out to be a brief definition of reliability. In fact the book also contains discussions of test-retest, equivalent forms, and split-half reliabilities, but these are included in the section on correlation methods and are *not* listed in the index. An entry for split-half reliability in Cohen's index refers to a single quoted coefficient for an instrument. Cohen's index also refers to the Spearman-Brown formula as a "reliability test."

It is difficult to compare these two works other than in terms of how well they appear to meet their stated objectives. In the case of *Research in Education* it may be said that this is the best attempt yet seen by this reviewer at an introductory text for a graduate course in educational research. The Cohen text certainly introduces a variety of topics, research methods, and data techniques for studying the classroom and school environments. A beginning researcher would be well advised, however, to keep in mind some of the questions raised above.

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THE CURRICULUM: THEORY AND PRACTICE. By A. V. Kelly. London: Harper and Row, 1977, 202 pp.

The spate of general books on curriculum continues unabated, a testimony to the enormous expansion of what the author of this volume calls “the curriculum industry” that has grown up on both sides of the Atlantic as planned change has become an educational norm. Kelly, who lectures in Curriculum Studies at Goldsmiths’ College, London, claims justification for this mercifully brief treatment (in comparison with most tomes in the field) in the fact that he has attempted an overview instead of dealing with a single aspect of Curriculum Theory. The capitalization is his and the implied assumption that there is a body of curriculum theory may be questionable. In addition, he has attempted to provide a dispassionate, if not an objective, explication of many theories and positions, ideological or otherwise, in the field to the end that the reader may gain “the understanding he needs to weigh them against each other.” The assumed aim is to assist the practising teacher to bridge the theory-practice gap. In this, and the related aims noted, Kelly has succeeded admirably.

Despite an eclectic approach, the volume does argue a specific case — that of the teacher’s role in curriculum development and the need to support him/her in that role. The argument is based on the familiar assumption, now almost the primary canon of practical curriculum development, that control of the process “will always rest in the hands of the teacher in the classroom.” Given this fact, the teacher must be supported and Kelly seeks to do that by making available some of the curriculum theories that abound in such a way as to promote understanding and thereby to contribute to more effective practice.

An opening chapter on curriculum planning focuses on issues relevant to the curriculum viewed as an “overall rationale for the educational programme” of any school together with general features of curriculum change and development. Throughout, the emphasis is on the problem, in Lawrence Stenhouse’s terms, of the relationship between intention and reality. Theory and practice must go hand in hand and curriculum studies must be based on an integrated, interdisciplinary approach.

Subsequent chapters deal respectively with curriculum objectives, content, integration, evaluation and the social context of curriculum development. Linear Tylerian development and objectives models are critically, concisely, and lucidly analyzed and alternative models, e.g., Eisner’s “expressive objectives,” are presented. Particularly cogent is a critique of Bloom’s taxonomy as lacking a concept of education.

Kelly is at his best in dealing with the issue of curriculum content. In thirty pages he manages to discuss a whole range of related issues: sources of cultural content as between “high” and “folk” cultures, knowledge transmitted for “its own sake,” Hirst’s view of the nature of knowledge and its relevance for a curriculum based on rationality, the view of knowledge as socially constructed and utilitarian views of knowledge and the curriculum, among many others. On the crucial question of who makes the selection of what is to be taught, Kelly, consistent with his overall thesis, concludes that inevitably this rests “with the professional judgement of the teacher.” Such judgement, itself inevitably subjective, must be informed and “firmly based on a full knowledge and understanding of the issues involved.” Understanding must rest on insight into the social context of curriculum development. The actual context discussed is naturally British, but relevant enough to the experience of Canadian teachers to be helpful, at the same time that it provides valuable information about various aspects of the overseas curriculum scene. Issues related to teacher-based curriculum development, to dissemination

and implementation, to evaluation, teacher accountability, and a common curriculum are all treated in straightforward fashion free of jargon and technical detail. Most of these themes are elaborated in separate chapters, the last, dealing with the issue of a “common curriculum,” being particularly relevant in a “back to basics” era.

For the nonspecialist at any level, this book is an excellent introduction to curriculum studies. It would be valuable as a core text in an undergraduate course or as a theoretical handbook in curriculum development projects and in-service work. A useful, up-to-date bibliography of nearly 150 articles, reports, and books is included.

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PREPARATION OF MANUSCRIPTS

1. All manuscripts must be typewritten, double spaced, and submitted in duplicate. An abstract of approximately 100 words in length, typed on a separate page, should be provided.
2. Tables must be numbered in Arabic numerals with the word 'Table' centered and in capital letters, e.g., TABLE 4. The heading of the table is to be centered below and typed in capitals. The format of tables should conform to the specifications in the APA Publications Manual.
3. Graphs and charts should be used only if essential. They must be carefully prepared on separate sheets in India ink, ready for reproduction. Graphs must be properly labelled using Arabic numerals, e.g., Figure 3.
4. Each table or figure should be presented on a separate page. The position of tables and graphs should be clearly indicated within the text by inserting at the relevant point the phrase (Insert Table 2 here).
5. References should appear in parentheses following the reference citing the author's name (unless the name appears in the text), the year of publication, and page number if appropriate. For direct quotations, the reference should be cited and the page number given in brackets before the final punctuation of the quotation. The references should be listed alphabetically by author's last names at the end of the manuscript under the heading, *References*.
6. Explanatory notes, numbered consecutively and identified in the text with a superscript, may be included under the heading of *Notes*. They should be double spaced and placed at the end of the manuscript immediately preceding the *References*. The citing of references and quotations in the *Notes* should conform to the procedures outlined in No. 5 above.
7. Spelling shall conform to the *Oxford English Dictionary*, except in the case of direct quotations which must conform to the original. Editorial alterations will be made if necessary.
8. In matters of style, the APA Publications Manual is considered definitive.

